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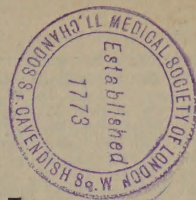
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Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ROCHARD ON SURGICAL THERMOMETRY.

M. Rochard (*Histoire de la Chirurgie Française du XIXe Siècle*, Baillière, Paris) discusses shortly the history of medical thermometry according to Wunderlich, and the bibliographical indications of the article 'Chaleur' in the *Dictionnaire de Médecine et de Chirurgie Pratiques*, vol. vi. He summarises the monographs of Galliot,* Demarquay,† Dumeril,‡ Demarquay,§ Verneuil and Billroth,|| and briefly indicates their interesting results.

Traumatic Lesions.—Extensive wounds from surgical operation are immediately followed by a notable elevation of temperature (Simon, E. Montgomery, Demarquay). Galliot observed an elevation of the thermometer to 101° immediately after an accident, followed by subsidence in three days to the normal temperature. In complicated fractures the defervescence is slower; profound concussion of the nervous system produces a similar elevation; serious injuries from shells and fire-arms produced on the contrary depression of temperature varying from 1° to 5°; it is most marked in the subjects of alcoholism. According to Demarquay, whose observations were numerous during the siege of Paris, depression to 95° was always followed by death; this depression seemed to be associated with lesion of the peritoneum. Similar phenomena accompany severe and extensive fevers. (Kuss, Demarquay, Billroth.)

Secondary Accidents of Wounds.—These are always accompanied by an elevation of temperature. Traumatic fever (Billroth, *loc. cit.*) occurs generally in the first seventy-four hours, is accompanied by

* Thèse inaugurale de Galliot. ('Essai sur la thermométrie chirurgicale.' Paris, 1872.)

† J. N. Demarquay, 'Recherches expérimentales sur la température animale.' (*Thèses de Paris*, 1847.)

‡ 'Recherches expérimentales sur les modifications imprimées à la température animale par l'éther et par le chloroforme.' (*Archives Générales de Médecine*, 1848, 4^e série, t. xvi. p. 189.)

§ J. N. Demarquay, 'Des modifications imprimées à la température animale par quelques maladies chirurgicales.' (*Moniteur des Hôpitaux*, 1856, p. 956.)—'Mémoire sur les modifications imprimées à la température animale par la ligature d'une anse intestinale.' (*Comptes rendus de l'Académie des Sciences*, 1860, t. li. p. 944.)—'Chaleur animale dans les maladies chirurgicales,' Article 'Chaleur' du *Nouveau Dictionnaire de Médecine et de Chirurgie pratiques*, t. vi. p. 822, 1867.—'Sur les modifications imprimées à la température animale par les grands traumatismes.' (*Comptes rendus de l'Académie des sciences*, 1871, t. lxxiii. p. 471.)—Voir aussi Paul Redard, 'De l'abaissement de température dans les grands traumatismes par armes à feu.' (*Archives Générales de Médecine*, janvier, 1872, t. i. p. 29.)

|| Th. Billroth, 'Études expérimentales sur la fièvre traumatique et sur les maladies traumatiques accidentelles.' ('Archives de chirurgie clinique' de Langenbeck, vol. vi., traduit par le docteur Culmann. (*Archives Générales de Médecine*, 1865, 6^e série, t. vi. p. 547, 641.)

rapid rise of temperature, of which the maximum is usually found between the third and sixth day. It very rarely rises above 104°, its *acme* is short; and towards the evening, defervescence is sometimes rapid, sometimes slow, and then accompanied by evening elevations. The prolongation of the *acme* or the return of marked exacerbations are indications of internal inflammation, or of the approach of pyæmia.

Erysipelas has the most characteristic graphic trace; brusque ascensions, uniform and prolonged *acme*, sudden defervescence. The thermometer, after standing at 104° for three or four days, suddenly falls to 98°. This series of events occurs with each outbreak, and this typical course would alone suffice to distinguish erysipelas from purulent infection. In the latter, although the rise is as rapid, and the *acme* reached often higher by two or three degrees, it is extremely short, and the defervescence is rapid; then follows a new access, which goes through the same phases and is followed by several others. The thermographic trace shows alternately very high and very low levels; finally, in the forty-eight hours preceding death, the remissions cease and the thermometer gradually rises to 107°. All these characters suffice to distinguish pyæmia from suppurative and hectic fever, in which there are also exacerbations, but daily, regular, and of minor degree.

The thermometer attains its maximum in tetanus. The remarkable symptom in this disease is the occurrence of a sudden elevation (Billroth, Leyden) in a very few minutes, to excessive temperature, 109° and 111°. This is especially seen in the last period of tetanus, when the diaphragm is paralysed and asphyxia commences. The temperature often rises several tenths of a degree after death. There is no anatomical lesion to explain this fact. [The author does not seem to be aware of the interesting pathological conditions discovered by Lockhart Clarke in the spinal cord, which may well have a direct relation to the elevation of temperature.] In wounds of the spinal cord, almost as considerable an elevation has been observed by Brodie in 1837, Billroth in 1862, Weber (of London) in 1868, Quincke and Fischer in 1869; they have all seen the thermometer rise as high as 107°, and Weber to 111°.

Alterations in the Blood.—All diseases which slowly obstruct circulation, or hæmotosis, are accompanied by a slow depression of temperature, which seldom exceeds from one to two degrees, and is observed at all hours of the day. The same phenomenon is produced in blood-poisoning when it diminishes oxydation, especially in alcoholism and uræmia; in the latter affection the depression is constant and pathognomonic. The thermometer falls sometimes to 86°, and in that case death is at hand.

Local Temperature.—Arterial aneurisms produce appreciable rise of temperature in the affected limb, most pronounced at a distance from the seat of the aneurism; in a case of popliteal aneurism (Brochart*) the elevation on the diseased side in the bend of the knee was only 1.4°, whilst between the toes it was 6°. Demarquay, Monneret, and Henry of Nantes have made the same observation.

When circulation is suddenly arrested by ligature, the temperature below the point of obstruction falls; if circulation is re-established by an anastomosis at

* *Bulletin de la Société de Chirurgie*, 2^{de} série, t. ii. p. 345.

affect the Jews of any country. And, according to Fracastor, the Jews escaped completely the epidemic typhus of 1505. Dr. Stallard, in his work on 'London Pauperism,' says Jewish children have no hereditary syphilis, and scarcely any scrofula. Their greater tenacity of life is, therefore, not only due to better maternal care and nursing, but to the inheritance of a better physical constitution than the Christian child.

M. Lévy estimates that the mean average duration of life among Jews exceeds that among Christians by about five years. In 1849, Prussia computed one death for :—

Evangelists.	Catholics.	Jews.
34·35 inhab.	30·18 inhab.	40·69 inhab.

According to Stallard, the mortality among Jewish children in London from one to five years of age is only 10 per cent., while among the Christians it is 14 per cent. The average duration of life of the Christian in London is thirty-seven years; of the Jew forty-nine years.

In Prussia the Jewish population (1822–1840) increased 34½ per cent.; Christians only 28 per cent. There was one birth to every twenty-eight Jews, one to every twenty-five Christians; one marriage among every 139 Jews, one among 112 Christians; one death among forty Jews, one in thirty-four Christians.

Increase in population among 100,000 individuals :—

	Christians.	Jews.
Marriages	893	719
Births	4,001	3,546
Deaths (still-births included)	2,961	2,161
Excess of births over deaths	1,040	1,385

Legoyt says that the Jews have fewer still-births than Christians. Glätter gives one still-birth in nineteen among Christians, and one in thirty-four among Jews :—

	Christians.	Jews.
Still-born in Prussia in 100,000 inhabitants	143	89
„ „ among 100,000 children	3,569	2,524

According to Lévy, they lose fewer children than other religionists; from 1859 to 1861, we find in Prussia for 100 births the proportions of mortality which follow :—

Evangel's.	Cath.	Philipos.	Ger. Cath.	Mennon's	Jews.
66·37	65·94	56·04	56·77	86·66	48·11

Some of the causes of Jewish longevity are chiefly as follows. They are obliged to keep two Sundays in a week, besides Jewish, Christian, and political holidays. The circumstance of two out of every seven days being lost to business, gives them by necessity about twice as many days of leisure as Christians. They do not engage in mining, mechanics, and other hazardous occupations. The biblical and traditional prohibitions of certain aliments is favourable to longevity. The fifth and last of the summary of causes to which M. Legoyt attributes the greater mean average duration of life of this people, is that 'the *sentiment de la famille*, more developed in them than in Christians, assures to their children, to their aged and infirm parents, a solicitude more active; to the new-born the mother's nursing; to the poor an assistance more efficacious. Their charity is unequalled; their morality is demonstrated by judiciary statistics; the firmness and serenity of spirit are the most marked traits of their character, and proceed from a profound faith, from an unalterable confidence

in Providence.' They rarely use alcoholic liquors, and almost never to excess; this is universally conceded. They seldom marry out of their own race, and have little hereditary disease.

Parton, who quotes from the organ of the London Society for the Conversion of Jews, which spends 250,000 dollars annually 'in converting (?) a few poverty-stricken wretches, and sending abroad on highly interesting tours a few plausible renegades,' confesses :—'As to their moral qualities, the evidence seems to show that the lower class of Jews are decidedly superior to the same class among ourselves. They are far less given to drinking; their religious customs enforce a certain amount of cleanliness, both personal and in their dwellings; and two families are never found inhabiting the same apartment.'

Among the conditions unfavourable to longevity, we may mention their almost universal habit of residence in large cities; and the rarity of their engagement in agricultural pursuits.

Dr. Glätter concludes from all this that, under the relation of duration of life, the Jews are in a condition much more advantageous than Christians. In effect, the more the mean duration of life augments in a people, as is the case with the Jews, the more it diminishes the number of widows and orphans; the more numerous the active and productive class, the more it diminishes the class of pure consumers.

It is evident from all we have here shown, that the numerical increase of a race depends more on the conservation of those already born, than in a great fecundity with less conservation of the issue.

The Jews have always taken every precaution to preserve the life of every individual born.

The Mosaic laws prescribe most of these measures—even to the construction of their houses, requiring balustrades about the roofs to keep children from falling from them. Ancient Rome, with all the jealous care she exercised in the conservation of her citizens, did not approach the excellence of the Mosaic dispensation in these matters.

Jewish subjects would, therefore, appear to be much more advantageous risks for life-companies than other races.

HITZIG ON EXPERIMENTS ON THE BRAIN.

Hitzig, in a new series of experiments ('Untersuchungen über das Gehirn,' Neue Folge, Besonderer Abdruck aus *Reichert's und Du Bois-Reymond's Archiv*, 1874, Heft 4, pp. 392–441), has studied the effects of localised lesions in the brains of dogs. The method consisted in scooping off the grey matter of the cortex to a variable extent from certain regions which had already been experimented on by the galvanic stimulus. The regions operated on directly were in the frontal region, and are classified under two groups. The first group consists of five experiments on the gyri, denominated *a, b, c* (Fig. in text), [corresponding to the frontal portion of the hemisphere in advance of what the Reporter speaks of as the sigmoid gyrus, marked 23 in Fig. 6, *West Riding Reports*, vol. iii., p. 48]. The result of destructive lesions in this region on the left side caused no appreciable symptoms, and especially none as regards motor power. This same region yielded no results on galvanic stimulation.

The second group comprises nine experiments, in which the lesion was directly established in gyrus *d* (Fig. in text) [*i.e.* the anterior division of the sigmoid

gyrus in advance of the crucial sulcus, marked with the letters 3, 4, *op. cit.—Rep.*], but which in some of the experiments extended sooner or later across the crucial sulcus, and affected the regions stimulation of which causes movements of the legs. Stimulation of this special region yielded to Hitzig either negative or very indefinite results. From an analysis of these cases Hitzig concludes, that 'the question whether gyrus *d* stands directly or indirectly in relation to muscular movement or not, is answered in the negative, and that the irritation experiments are confirmed.' In the other cases where affections of motion in the limbs were observed, which Hitzig describes as 'disturbances of muscle-consciousness' (Störungen des Muskelbewusstseins), gyrus *e* (*i.e.* the posterior division of the sigmoid gyrus (*Rep.*) was found to be more or less involved in the lesion. Another symptom which he describes as occurring with this 'Störung des Muskelbewusstseins,' is a defect of the energy of the will ('Defect der Willensenergie'), which symptom also resulted in two cases from lesion of gyrus *d*. He also remarks that extensive lesions of the posterior regions of the brain have a similar effect, but not to the same extent as limited lesions in gyrus *e*. Another point to which he calls attention is, that the limbs of the animals in which gyrus *e* was destroyed, in addition to the aimless and defective co-ordination of their movements, exhibited a different relation to each other and to the trunk when the animals were raised up. The limb was placed irregularly on the ground, the animal frequently fell, and was unable to maintain its foothold, though the limbs were placed in the proper position to support the body. The cause of this peculiarity, and its relation to a similar symptom described by Nothnagel in rabbits, Hitzig is unable to decide.

As the most remarkable phenomenon in his experiments, he characterises the results obtained in one dog, in which both gyri *d* and *e* were destroyed. This animal was affected with well marked disturbance of its 'Muskelbewusstsein,' but had not lost its sight, yet it moved its fore-paw as if it did not see, or as if it could form no conception of its position. This and other facts Hitzig promises to consider more minutely hereafter.

[Without wishing to anticipate a more minute examination of these and other experiments of Hitzig on the functions of the cortical centres, the Reporter would merely indicate that his interpretation of these and similar experiments, now as before, differs from that of Hitzig in vital and fundamental respects.—*Rep.*]

D. FERRIER, M.D.

ANATOMY AND PHYSIOLOGY.

BEQUEREL ON THE INTERVENTION OF PHYSICO-CHEMICAL FORCES IN THE PHENOMENA OF LIFE. The study of these forces, in life, the author says (*Comptes Rendus*, December 7) presents many difficulties; and in a memoir presented to the Academy (here abstracted), he approaches it from a consideration of the nature of the active forces and their mode of action, apart from that of the products formed.

Of physico-chemical forces influencing organic functions, perhaps the most important are the electro-capillary. These, consisting of electro-capil-

lary currents, only require, for their production, permeable tissues separating two different liquids; a frequent case in the animal system.

It is easy to prove their existence and direction with a galvanometer. Their intensity can be measured by the method of opposition, which consists in opposing to the current whose intensity is sought, another current from a certain number of thermo-electric couples united in a pile, till the galvanometer is no longer deflected; the number of couples employed represents the intensity of the current.

The question treated in the present memoir is that of currents produced on contact of the two bloods, and of different liquids in the system, separated only by tissues; also on contact with other liquids. [In no. xxxvi. of the Academy *Mémoires*, the author has studied electro-capillary currents in the muscles, the bones, and the brain.]

He begins by giving a rapid description of the mode of translation of blood in the vessels, in order to point out how numerous currents must arise in this translation. Arterial blood, before becoming venous, passes through capillary vessels, where it is in contact with muscles covered with exuded liquids; this contact gives rise to electro-capillary actions which concur in their nutrition and increase, evolving certain elements, particularly carbonic acid, which is carried into the lungs by the blood become venous; the arterial blood, then, continually undergoes profound changes, and is charged with carbonic acid in the lungs.

We may thus see, that the electro-motive force, direction, and intensity, produced on contact of arterial with venous blood, has not major importance, since the arterial blood becomes successively venous blood; this force is to be considered as the resultant of electro-motive forces produced in the course of the two bloods.

This is how M. Becquerel, assisted by M. Dastre, sought to measure the electro-motive force in a chloroformed dog.

The carotid and jugular are laid bare on one side, and a T-tube, inverted, is introduced into each vessel (the blood having been stopped in a certain length of the vein or artery, by means of ligatures, and two incisions made, the two tapering ends of the glass tube are inserted in these, and the vessel tightly tied about them with a waxed thread); the other branch of the tube is connected with a caoutchouc tube; an electrode, formed of a thin plate of platinum, rolled in a spiral and carefully depolarised, having been inserted in the vertical branch of each tube, the blood is again allowed to pass; the two electrodes are connected with a galvanometer, and the method of opposition brought into service.

In three such experiments, the following electro-motive forces were obtained (referred to those of a cadmium couple valued at 100.)

Electromotive forces.

Blood of carotid artery . . . - }	21-22 . 33-43 . 28-32½
„ jugular vein . . . + }	

(The arterial blood is negative instead of positive, as M. Scoutteten has affirmed; but in his experiments the polarisation of the plates seems to have been a source of error.) The differences arise from the difficulty of operating in the same conditions, when the artery and vein continue open some time. One may avoid, in part, these changes, by operating with two defibrinated portions of blood, one of which is introduced into a cracked tube, immersed in a

vessel containing the other; the electromotive forces are then less, and present less differences, as the following shows.

		Electromotive forces.
Arterial blood	: +	10-8. 8-10 (average g).
Venous "	: -	

It is seen that the electric effects are here inverse to those obtained previously.

Not being able to bring each of the two bloods directly into contact with the liquid exuded from the muscles, M. Becquerel operated as follows on the live animal. Each of the two blood-vessels was placed successively in a small gutter of glass, containing (first) distilled water; then the platinum plates, thoroughly depolarised, were immersed, one in the water, the other in the arterial or venous blood. In this way a force of 67 was observed in the case of arterial blood (-) and water (+); and a force of 47 with venous blood (-) and water (+); difference 20.

Operating with defibrinated blood, on the other hand, the corresponding differences, in three experiments, were 10, 12, 10, though the forces varied from 39 to 49, with arterial blood (-) and water (+) and from 49 to 70 with venous blood (-) and water (+).

A series of similar experiments were made, in which the water was replaced by various other liquids, as bile, urine, wine, grape-juice, sugared water, and water charged with carbonic acid. It was always observed that the blood was negative to the other liquid, whence we may infer the same to occur on contact of arterial blood of the capillaries with the liquid exuded from muscles. The direction of the electro-capillary currents is such, that the interior walls of the capillaries are the positive electrodes of couples acting as chemical forces, and the exterior walls the negative electrodes. There is, then, oxidation within the capillaries, and reduction on the side of the muscles.

It has been found that the interior of a muscle is negative, in general, to the liquids which moisten the exterior part; the electro-capillary currents go, then, from the interior to the exterior; consequently, there is oxidation within and reduction without. We may thus see what a multitude of various chemical reactions take place in the interior of organised bodies.

The same mode of experimentation has been used in observing electro-capillary currents in fruits, etc., the apple, the pear, the potato, the carrot, and the turnip; on contact with water, it was always found that the interior part was positive. Thus, when fruits are wet (with fresh water), their internal parts near the external tissue continually tend to be oxidised (salt water produces contrary effects).

Before we knew of electro-capillary currents, it might have been supposed that, on sending an electric current into an organised body, in therapeutic treatment with electricity, electro-chemical actions were not produced, that is, effects of composition and decomposition; inasmuch as there were not solid bodies present, conductors of electricity, and capable of serving as electrodes (as happens when a metallic wire is introduced into a solution traversed by an electric current); but since it is known that the extremely thin liquid layer adhering to the walls of tissues permeable by capillary action behaves like a metallic plate in electro-chemical decompositions, we can perceive how these phenomena may equally be produced in the system.

And such effects must therefore be taken into consideration in therapeutical applications of electricity; for, according to the direction of the battery current, the electro-capillary current tends to oxidise or to reduce the blood, and contrary effects are produced on liquids adherent to the walls; thus extremely complex chemical effects may result, the study of which is very difficult.

GRUBER ON THE FRONTAL FONTANELLE-BONE.—OS FONTICULI FRONTALIS.—Out of the enormous collection, numbering about 10,000 human skulls, amassed in the comparatively short space of a quarter of a century in the Institute of Anatomy at St. Petersburg, Professor Wenzel Gruber found forty-three to possess a 'Wormian bone' lodged in the former site of the anterior or frontal fontanelle. His observations and notes are comprehended in a paper published in the *Mémoires de l'Académie des Sciences de St. Petersburg*, tome xix., entitled, 'Ueber den Stirnfontanellknöchen (os fonticuli frontalis) bei dem Menschen und bei den Säugethieren,' and illustrated by two plates of fifty-seven figures. Of the forty-three skulls the fontanelle-bone was single in forty, double in one, and triple in a hydrocephalic boy, in whom there were about thirty 'Wormian' bones besides, lodged in the lambdoidal suture. It follows that very rarely—viz., only once in every 250 skulls—is a specimen met with having a fontanelle-bone. The bone itself is generally of an irregularly rhomboidal shape, and is imbedded between the frontal and two parietal bones, in such wise that its anterior angle or margin enters into the formation of a part of the coronal suture. Complete synostosis of the bone with its three neighbours occurred in no case externally, while internally it was seen in twelve out of the forty having but a single fontanelle-bone—and out of these there was not a trace of a suture in seven—and also in the skull with a double Wormian bone in the site of the anterior fontanelle. In anatomical literature, about from eighty to ninety cases are registered, in which the bone in question was present, and only one case—quoted by Meckel (*Handbuch der pathologischen Anatomie*, Band i., Leipzig, 1812), in which it was double. Very little is deducible from observations made upon lower mammals (including from thirty to thirty-two species of twenty-five to twenty-seven genera out of nine orders observed), except that, as in well-formed human skulls, so in well-developed skulls of other mammalia, the triple as well as the double and single varieties of the bone may be present; and, as in man, the single variety the oftenest. It must be noted that in one and the same species of mammals the multiple variety may be oftener present than in man. To judge from Professor Gruber's notes, the abnormal ossicle seems to be more frequent among the Edentata—occurring in both kinds of sloths—than in the rest of the mammalia.

J. C. GALTON.

MORIGGIA ON DIGESTIVE FLUID IN THE FÆTUS. A. Moriggia (*Revista Clinica*, 1873; abstract in *Centralblatt für die Medicinischen Wissenschaften*, no. 22, 1874) has investigated more than a hundred embryos (chiefly of the cow), from the most different periods of development, and has found that the digestive power of the mucous membrane of the stomach is present, and can be demonstrated, not only in the sixth and fifth, but also in the fourth and third months of pregnancy. The salivary glands, on

the contrary, have no digestive properties either in the fœtus or in the newly born. (Compare Schiffer and Korowin, *Journal of Anat. and Phys.*, vol. viii.) The bile-forming function of the liver begins very early. When the liver begins to produce glycogen could not be accurately ascertained; for, even at the earliest period of development of the liver, almost all the embryonal tissues contain glycogen or glycose. Embryos which have been preserved for a long time at the temperature of the body, in Moleschott's acetic acid mixture, were by the action of their own gastric juice completely digested, without a trace of them being left. To self-digestion the author seeks to ascribe the disappearance of dead embryos in closed cysts. The parts of such embryos which generally remain to the last are either those which are widely removed from the stomach (*e.g.* head), or those which afford resistance to the digestive power of the gastric juice (*e.g.* hair, bones). From the constant presence of amniotic fluid in the stomach, and of amniotic epithelium in the meconium of the embryo of the cow, it is to be concluded that a constant swallowing of the amniotic fluid takes place in the embryo.

GRÜTZNER ON A NEW METHOD OF ESTIMATING THE QUANTITY OF PEPSIN BY THE COLOUR.—P. Grützner describes this method in *Pflüger's Archiv*, vol. viii. (abstract in *Centralblatt für die Medicin. Wissenschaften*, no. 20, 1874). Fibrin is to be coloured by placing it in a solution of carmine, then immediately preserved in glycerine, and before making an experiment, after washing away the glycerine, it is placed in dilute hydrochloric acid (two per cent.) until it swells up. By this means a beautiful red coloured jelly-like mass is obtained, which is easily dissolved in digesting fluid, and just in the degree to which it dissolves it is coloured red. The greater the quantity of pepsin in the fluid to be investigated, the quicker does the solution of fibrin take place (*ceteris paribus*), and therewith the red colouring of the fluid. This method is as equally well fitted for the detection of small quantities of pepsin, as for the comparison of the quantity of pepsin in two fluids.

WM. STIRLING, D.Sc., M.B. (Edinburgh.)

RECENT PAPERS.

Lectures on the Lymphatic Vessels. By M. Sappey. (*L'Union Médicale*, December 24, *et seq.*)
On the Physiology of Vomiting and the Action of Anti-emetics and Emetics. By T. Lauder Brunton, M.D. (*Practitioner*, December, 1874.)

PATHOLOGY.

HILLER ON THE ERYSIPELATOUS INFLAMMATION-PROCESS.—Dr. Arnold Hiller, of Berlin (*Berliner Klinische Wochenschrift*, nos. 48, 49, 1874), gives an elaborate article on the pathology of erysipelas, the specific peculiarities of which inflammatory affection are its infectious character, its tendency to affect only superficial parts and to spread continuously, and, finally, its extremely slight tendency to suppuration and formation of abscess, notwithstanding the prolonged presence of perfect and undoubted inflammatory phenomena. This last established characteristic is of the greatest interest theoretically, as it contradicts the modern pathological doctrine based on experimentation and observation, that every

form of regularly induced inflammation—and as such is erysipelas to be considered—is associated with the migration of white cells. This peculiarity of erysipelatoous inflammation is due not to any anatomical peculiarity of the affected organ, but to the specificity of the cause of the inflammation. The tendency of modern pathologists to attribute to erysipelas, as to other infectious morbid processes, a parasitic origin, and an extension by means of very low organisms (bacteria, micrococci), is opposed by the author, who points out as objections to it the facts of the ubiquity of these organisms, of the frequent opportunities for their introduction into the body, and of the organic uniformity of the objects as contrasted with the multiplicity of morbid processes to which they are supposed to give rise. Hiller repeats here some critical observations on a paper by Lukomsky (*Virchow's Archiv*, Band lx.), in which this view of the parasitic origin of erysipelas was supposed to be proved by anatomical and experimental data. In the first place, Hiller expresses his doubt as to whether the bodies found by Lukomsky in cases of erysipelas were really micrococci, and states that the strongly light-refracting property, the bright lustre, and the sharp contours of these bodies, together with their resistance to the action of acetic acid, indicate a fatty nature. Bacteria have but little lustre, and present a feeble and indistinct contour. Masses of these bodies were found by Lukomsky in five only out of nine cases of erysipelas, and these only at the margins of the inflamed part, the centre of the disease and the starting-point of the infection being quite free from them, a fact in direct opposition to what is known concerning the vegetation and local extension of bacteria, and to the results of pathological experiments on animals. This absence of the supposed micrococci from the central portions of the inflamed part cannot properly be explained, Hiller holds, by the idea of absorption or migration. The bodies observed by Lukomsky, on the other hand, formed large masses, completely filling the lumen of vessels, and, for mechanical reasons, could not be absorbed; and, on the other hand, they are stated to be quiescent bodies without any capacity for active locomotion. The supposed property of these bodies of setting up inflammation is disproved by the fact, that in all those portions of tissue which present under the microscope the most marked inflammatory changes, very few, if any, collections of the so-called 'micrococci' are to be found; whilst at parts where lymph, and blood-vessels, and capillaries are filled with them, no trace of any cellular infiltration of the tissue is visible. Lukomsky succeeded in setting up fatal spreading inflammation in rabbits by injecting putrid, and therefore bacteria-containing fluids; but as many believe in a chemical action of the septic substance that excites erysipelas, Hiller holds that the experimental side of the question cannot be settled until inoculations are made, firstly, of putrid fluids deprived of all organisms by filtration, and secondly, of a chemically indifferent fluid containing organisms unmixed with chemical material. Hiller holds that both experimentation and clinical experience demonstrate the chemical nature of the poison of erysipelas, and that this poison is formed by the decomposition of organic substances rich in albumen (wound secretion). It is, therefore, highly improbable that the poison of erysipelas is a specific one. As a rule, all septic poisons work in a like manner; locally they are intensely phlogogenous,

generally they are actively pyrogenous, with certain associated toxical phenomena dependent on the intensity of the blood-poisoning. That its absorption from the wound leads in one case to lymphangitis, in another case to erysipelas or ichorous phlegmon, in other cases again to septic thrombo-phlebitis with embolia (pyæmia), or to pure septicaemia, seems to Hiller to depend not on a specific mode of action of this or that material, but rather on the tracts of absorption, the locality in which it acts, and in the mode and rapidity of its spreading. Again, the possible variations in the progress of any one of these forms of infection depend on the one hand on the amount, the intensity, and the concentration of the poison, and on the other hand on the multiplicity and casual combination of those various septic products of decomposition, each of which may possibly have a special poisonous action. According to Hiller, this specific poison of erysipelas enters either by the lymph-vessels and capillaries of the skin and subcutaneous connective tissue, or by the veins; in the former instance acting slowly and with pyrogenous results, in the latter instance speedily and with phlogogenous results. The entrance of the poison is indicated by signs; but when the second form of infection occurs, local inflammatory signs may be observed before shivering and elevation of temperature. In addition to the common local changes found in inflamed structures, such as vascular dilatation and distension, retardation of blood-current, increase in the number of white-cells, etc., Hiller describes certain peculiar changes which he observed in advanced stages of erysipelas. The serum of the blood becomes altered, the red corpuscles become wrinkled and disorganised, and the white corpuscles undergo necrobiosis and, in some instances, necrosis. The blood contains an increased number of the white corpuscles, which are very granular and filled with small bright molecules; with the further action of the poison the corpuscles lose their contour, and are converted into more or less spherical heaps of strongly refracting molecules. It was supposed at first, that these masses of molecules were formed by a process of fatty metamorphosis of the contents of the white corpuscles; but Hiller is now inclined to regard them as the products of inflammatory proliferation of the nuclei of the corpuscles. Associated with these nutritive changes of the white or lymph corpuscles there are important functional changes indicated by arrest of the amœboid motility and contractility of these bodies, in consequence of which their migration is retarded, and often altogether prevented; this Hiller regards as the main peculiarity of the erysipelatous inflammatory process, and the reason why it seldom results in suppuration and formation of pustules or abscesses. The *restitutio ad integrum* of the tissues affected by erysipelas is dependent on the rapidity of the removal of the stagnant masses of detritus formed by the degenerated corpuscles. This, in ordinary and favourable cases, takes place by absorption, by which term is indicated the mechanical soaking of the degenerated corpuscular elements in the incubating fluids. When this absorption does not take place, inflammation persists and becomes more intense, and fresh masses of detritus are formed, under the influence of which, added to the direct action of septic poison pervading the affected tissues, local death is produced (erysipelas gangrenosum). In phlegmonous erysipelas, where there is a tendency to suppuration, and usually a termination in the formation of an abscess, the

phlogistic action of the septic poison is more marked than its necrotic and specifically toxical action on the lymph-corpuscles and the blood. Septic poisons which act thus are formed in advanced stages of putrid decomposition, and this form of erysipelas somewhat corresponds to the phlegmonous inflammation of the integument that can be produced experimentally by the injection of putrid fluid. Hiller thinks that, from a pathological stand-point, it would be well to strike out this from the recognised forms of erysipelas. In conclusion, Hiller states that erysipelas does not attack the skin only, but that in his opinion every inflammation which is of infectious origin, and which creeps slowly over the surface of any organ without causing suppuration, is to be regarded as of erysipelatous nature. Such erysipelatous inflammation is met with in the inflated puerperal uterus, and in several forms of angina marked locally by swelling and redness of the mucous membrane of the mouth, fauces, and pharynx, and constitutionally by the occurrence of rigors and subsequent high fever.

W. JOHNSON SMITH.

BIRCH-HIRSCHFELD ON ENLARGEMENT OF THE SPLEEN, ESPECIALLY IN INFECTIOUS DISEASES.—At the forty-seventh congress of German naturalists and medical men, lately held at Breslau (*Berliner Klinische Wochenschrift*, November 30, 1874), Dr. Birch-Hirschfeld, of Dresden, remarked that formerly attention had been directed to enlargement of the spleen in malarious diseases, and in enteric fever, but not in other maladies. Of late it has become more and more evident that acute tumefaction of the spleen occurs in a number of infectious diseases, as, for example, in relapsing fever, and, as pointed out by Weil, in recent attacks of syphilis. Friedreich has even proposed to utilise the splenic tumour as a means of establishing the infectious nature of certain diseases hitherto considered as simple local affections [many forms of pneumonia, coryza, angina, etc.] The speaker had already brought before the Leipzig Natural History Society experiments on the behaviour of the cells of the splenic pulp with finely divided substances introduced into the blood-mass. Since then he had endeavoured, with the anatomical and pathological materials at his command, which were somewhat extensive, to furnish some foundation for the statistics of splenic tumours. Clinical observations by themselves are not always trustworthy, because even experienced observers may easily make mistakes as to the percussion-limits of the spleen. In order to judge of the dimensions of the normal spleen, the bodies of sixty persons, who were suicides, or who met with violent deaths, but were otherwise healthy, were taken as standards. The average weight of the spleen was 150 grammes ($4\frac{3}{4}$ ounces nearly), equal to 0.26 per cent. of the body weight. In 145 other cases, under fifty years of age, the result was not very different, namely 140 grammes ($4\frac{1}{2}$ ounces or 0.27 per cent. (*sic*). Above sixty years, the weight of the spleen, like that of the body, decreases considerably, being 99 grammes ($3\frac{1}{2}$ jss), or 0.23 per cent. of the body weight. Birch-Hirschfeld distinguishes between the etiology of primary cases of enlarged spleen (in leucæmia, and in bodies appearing otherwise healthy, dependent upon hypertrophy of the pulp and Malpighian corpuscles), and secondary cases. To the latter belong (a) splenic tumours dependent on blood-stasis (considerable enlargement from uncompensated mitral insufficiency; spleens a little

above normal in insufficiency of the aortic valves; finally, the pretty constantly occurring enlargement accompanying cirrhosis of the liver); (b) splenic tumours through amyloid degeneration; (c) those which occur in infectious diseases. In enteric fever the spleen-tumour is generally most marked in the second or third week, and disappears in the fifth week. He confirms Friedreich's observation, that the spleen is enlarged during the period of incubation. In the common form of variola, when fatal, there is no enlargement of the spleen. He includes the splenic tumours found in some forms of pulmonary tuberculosis amongst those caused by septic infection; the tumefaction of the spleen occurs in cases where the walls of cavities afford a surface favourable to absorption, especially where sudden ulcerative breaking up of the lung is brought about by purulent bronchitis. Comparison of metastatic pyæmia in the wounded and in puerperal cases, and of phlegmonous and gangrenous diseases of wounds without metastatic formations, with the phlegmonous simple peritonitic form of puerperal fever, showed this analogy, that the rule is to find a splenic tumour where there is metastatic infarction, or where infectious thrombi can be demonstrated in the course of the circulation; but where only phlegmonous processes are discoverable, the splenic tumour is hardly ever found. If we admit that there is a common source of infection for both forms, we must conclude that the matter absorbed by the splenic pulp-cells must be a non-diffusible one of stable constitution. Granular degeneration, along with solution and increased multiplication of the splenic pulp-cells, is peculiar to the septic tumours of the spleen, whilst, in enteric fever, the latter changes predominate. The septic tumours of the spleen appear to the naked eye as very soft, and of a pale yellowish-red, or speckled aspect. In congenital lues, enlargement of the spleen is almost always discoverable. In four cases also of acute rheumatism ending fatally, and in six of scarlatina, the spleen was found much enlarged.

W. BATHURST WOODMAN, M.D.

MEDICINE.

PINCUS ON THE TREATMENT OF TAPEWORM.—At a meeting of the Berlin Medical Society held on October 28, 1874 (*Berliner Klinische Wochenschrift*, November 30), Herr Pincus remarked that many medical men consider a preparatory treatment necessary before administering anthelmintics. This preparation consists of oils and low diet for some days beforehand, or of two or three days physicking, which irritates the worms. The consequence, he states, is that when the anthelmintic is given, portions only of the body, and not the head, are expelled. The remedies may be divided into two classes, namely, those which paralyse the movements of the proglottides, koussou, panna [the rhizome of *Lastrea* (*Aspidium*) athamanticum, much esteemed by the Zulu Caffres, and somewhat resembling our male-fern], kameela; and those which act upon the organs of adhesion, as the bark of pomegranate-root and male-fern. Whichever be employed, the best result is obtained by giving a full dose without any preparatory medication. Again, it has been advised, when the worm is found to protrude from the anus, to do nothing except let the patient sit over warm water; this may be done for hours, and the only

consequence is, that after from eight to ten feet of worm have come away, there is no further progress; probably because the head is not paralysed, and remains adherent, whilst the proglottides come away. In such cases Dr. Pincus gives a narcotic clyster, if the movements of the worm be lively; and then, in less than an hour, even when the tapeworm is broken, he has found the head to come away. The older remedies, such as pomegranate-root bark, are preferable, because they do not much derange the patient's health. Professor Henoch remarked that narcotic clysters, even with chloroform, had been recommended some time since. He asked if Dr. Pincus had himself experimented upon the worms. Dr. Pincus said that he meant substances which narcotised the worms themselves, particularly pomegranate-root bark. He had made experiments upon the proglottides passed by patients; the movements of these ceased immediately when subjected to koussou, panna, or kameela. He had made no direct experiments on the action of the other remedies in paralysing the adhesive organs. Professor Liebreich drew attention to the koussine or koussein prepared by Bedal, of Munich, which was not an alkaloid, but contained the resin of koussou. Two grammes of this preparation have the same effect as twenty grammes of koussou [35s koussine is equal to 3v of koussou.] Herr Paasch had also used pomegranate-root bark, but considered no cure as complete unless the worm came away *suâ sponte*. Professor Henoch denied that the passing of proglottides denoted the worms being themselves out of health; the proglottides severed themselves when sexually ripe, in order to pursue their farther transigrations. Herr Fürstenheim mentioned the thick lozenges prescribed by Rosenthal as very convenient in practice. They contained koussou. Herr Pincus believed that the proglottides become separated, when the fibres which connect them are so softened and worn that the alkaline mucus of the bowel dissolves them.

KLINGELHÖFFER ON THE TREATMENT OF MALIGNANT PUSTULE WITH CARBOLIC ACID.—In the *Berliner Klinische Wochenschrift* (no. 44), for November 2, 1874, Dr. Klingelhöffer, of Heusenstamm, gives an account of five cases of malignant pustule observed and treated by him. All the patients were tanners, employed in the same tanyard at Offenbach. The sites of the pustule or charbon were as follows; in no. 1, the angle of the lower jaw; no. 2, the upper lip; no. 3, the side of the neck; no. 4, the upper eyelid; no. 5, the forearm. It is remarkable that only the latter was in a site directly exposed to contagion from the skins or hides. Nos. 1 and 3 were treated by caustic potash locally, and liquor chlori internally. The first recovered, the other died in forty-eight hours. The others, nos. 2, 4, and 5 were treated by the pustules being cauterised, as deeply as possible, by the liquified crystals of carbolic acid; strong solutions (one to eight) in water or linseed oil being kept constantly applied afterwards, and the acid given internally. All three recovered, though none were seen till the second or third day. They were very severe cases. It is noteworthy that neither gave rise to fresh cases, although the last slept with six children and his parents in one room, and in the same bed with a case of acute eczema. Dr. Klingelhöffer recommends a mixture of ten grains of pure carbolic acid in six ounces of water; a tablespoonful being given every two hours. He considers the official doses (0·05 gramme, equal to $\frac{3}{4}$ grain as a dose, and

0.15 gramme, equal to $2\frac{1}{2}$ grains *per diem*) as too small. He has often greatly exceeded this. [The dose of the British Pharmacopœia is one to three grains, and the reporter has never seen bad effects from this, if well diluted. He has frequently given as much as ten grains in the twenty-four hours to adults, in appropriate cases, without any unpleasant effects.—*Ref.*] W. BATHURST WOODMAN, M.D.

RECENT PAPERS.

Note on a Remarkable Case of Exophthalmic Goitre. By Dr. Féréol. (*L'Union Médicale*, December 22.)
Electro-Puncture of the Heart. By M. Vulpian. (*Gazette Hebdomadaire de Paris*, December 25.)
Nervous Symptoms in Cases of Congenital Syphilis. By Dr. Hughlings Jackson. (*Journal of Mental Science*, January, 1875.)

SURGERY.

BOZEMAN ON THE PASSAGE OF THE HAND INTO THE RECTUM.—Dr. W. Bozeman, writing in the *New York Medical Record* on a case which he witnessed in Professor Simon's clinic at Heidelberg, says the subject of rectal and vesical explorations, which has attracted much attention in England and America during the last two or three years, was illustrated by Professor Simon upon this patient in the most practical manner. The passage of the hand into the rectum as a means of diagnosis, I believe, originated with him, and, bold and reckless as the procedure may appear to many, it is destined, when better understood, to prove a most valuable means of diagnosis. To be able to pass the hand and arm, per anum, to a point in the abdomen where the left kidney and false ribs can be felt, and the abdominal-wall, of the same side, to the median line, be lifted up, at every point, upon the ends of the fingers, seems almost incredible; and yet I saw this practised by Professor Simon upon his patient. Both Mr. Wells and myself, at the request of the Professor, made the same exploration with a satisfactory result.

From what I have seen and heard of this procedure at the clinic of Professor Simon, I am convinced that the dangers and accidents supposed to attend it have been greatly exaggerated. He says he has met with no difficulty, except now and then a little incontinence of fæces, which, however, continues only two or three days. The preparation for the operation consists in complete anæsthesia and in thoroughly washing out the large bowels. The latter, Professor Simon prefers to do by hydrostatic pressure, using for this purpose a graduated glass cylinder with a faucet near its bottom, and a long India-rubbertube terminating in the ordinary clyster-nozzle. From two to three quarts of water usually suffice. The apparatus is held by an assistant three or four feet above the patient. Dr. Simon has now operated eight times through the anus for recto-vaginal fistula, and he thinks the procedure preferable to the ordinary method where the fistula is situated high up. Why not approach the male bladder in the same manner, in cases of chronic catarrh and ulceration, and of great enlargement of the prostate gland where micturition is attended with difficulty? Cystotomy, under such circumstances, I have long thought to be not only a justifiable procedure, but one likely to be attended with good and encouraging results.

WACKERHEGEN ON A NEW METHOD OF APPLYING PLASTER OF PARIS BANDAGE.—Dr. Wackerhagen writes as follows in the *New York Medical Journal*. As I have experienced considerable difficulty in removing plaster of Paris dressings when applied by the roller bandage, and especially when obliged to remove them on account of pain caused by an increase of the swelling, I respectfully submit to the profession a method of application by which these disadvantages may be avoided. Having procured a woollen or cotton stocking sufficiently long to reach to the knee-joint, I cut from it, as a pattern, six layers of coarse red flannel (one quarter of an inch larger to allow for shrinkage). The flannel is then soaked in water, pressed, and laid over the back of a chair ready for use. A one-quarter-inch cotton rope is now sewed to the posterior median line of the stocking. The plaster of Paris being in process of preparation, the stocking is cut in the anterior median line, applied to the fractured limb, and laced up in front, including the rope, extension and counter-extension being kept up by assistants, and the fracture adjusted. Each layer of the flannel is now saturated in the plaster paste, and applied, three layers to each side of the limb, being careful to avoid covering the rope. After this is done, a layer of plaster paste is applied to the flannel, and, when this has become sufficiently dry, a coating of shellac varnish is applied, which produces an elegant finish, and also gives firmness to the splints. The varnish will dry in about fifteen minutes. This dressing can be removed in from three to five minutes, by loosening the rope from the plaster and cutting the thread which binds it to the stocking. The rope having been removed, the plain stocking surface can be cut through with an ordinary pair of scissors. The splint is then removed in two lateral portions, each half of the stocking remaining attached to its corresponding splint.

PIZZORNO ON THE CURE OF POPLITEAL ANEURISM BY DIGITAL COMPRESSION.—In *Lo Sperimentale* for November, 1874, we have an account by Dr. Pizzorno of a case of popliteal aneurism under the care of Dr. Corradi, successfully treated by digital pressure carried out by relays of assistants (four to the hour) during the space of three days. The points to which the author calls attention in the case are these. 1. The aneurism occurred in a perfectly healthy man about thirty-eight years of age, who had never had syphilis, and who was not aware of having received any injury—the only probable exciting cause being prolonged exposure of the lower extremities to wet, while he was laying the foundations of some houses. 2. The injection of ergotine into the neighbourhood of the tumour entirely relieved the pain caused by the aneurism itself, and, as he believes, much facilitated the treatment; while the pain caused by the compression was not at all relieved by the ergotine, but yielded readily to morphia. 3. The cure by digital pressure was aided and facilitated by pressure made directly on the aneurism with an air-ball bandaged into the ham in the bent position.

T. HOLMES.

INTRAVENOUS INJECTION OF CHLORAL FOR PRODUCING ANÆSTHESIA.—At a late meeting of the Paris Academy of Sciences, M. Oré forwarded particulars of two fresh cases of anæsthesia, produced by the intravenous injection of chloral. In one case the object proposed was to scoop out the tibia on account of caries of the bone, the other

was for the operation of ovariectomy. Anæsthesia in both cases was complete, and was neither accompanied nor followed by any accident which could be attributed to the chloral. M. Oré took the opportunity to point out the means of neutralising the possible acidity of the chloral, a circumstance which might possibly bring on coagulation of the blood in the veins. For this purpose it is sufficient to dissolve one gramme of carbonate of soda in ten grammes of distilled water, and to add two or three drops of this solution to a solution of one gramme of chloral in four of water.

RECENT PAPERS.

- Talipes. By Dr. A. Sayre. (*Philadelphia Medical and Surgical Reporter*, December 19, 1874.)
 Aneurism of the Femoral Artery; Ligature of the External Iliac. By M. E. Gallerand. (*Archives de Médecine Navale*, December, 1874.)
 Hæmorrhagic Mucous Polypus of the Maxillary Sinus. By Dr. Cusco. (*France Médicale*, December 26.)
 On Antiseptic Dressings. By M. Ernest Labbé. (*Journal de Thérapeutique*, December 25.)
 Treatment of Polypi of the Mucous Membrane of the Nasal Fossæ. By Dr. Terrillon. (*Bulletin Général de Thérapeutique*, December 30, 1874.)

MATERIA MEDICA AND THERAPEUTICS.

BARTHOLOW ON COMBINED ADMINISTRATION OF CHLORAL, MORPHIA, AND ATROPIA.—Dr. Bartholow, in a paper read before the New York Society of Neurology, October 19, began by stating the desirableness of further knowledge of the reactions which ensue when remedies affecting the nervous system are conjointly administered. He had to offer to the society a condensed summary of the results obtained from the simultaneous administration of chloral, atropia, and morphia.

Chloral differs from morphia, when injected subcutaneously, in the more decided systemic effects and the less local impression on the sentient nerves. As regards the systemic effects, the action of chloral is very much the same when administered hypodermically as by the stomach. The chief danger is an arrest of the respiratory movements. Chloral does not exert any chemical action on atropia when the two are held in solution together, for dilatation of the pupil of a cat takes place when the combined solution is instilled into the eye. Dilatation of the pupil also happens when they are administered hypodermically together. An apparent antagonism is observed as regards their action on the heart, when the solutions of chloral and atropia are placed in contact with the heart of a frog when in position in the chest, after division of the medulla, or when the heart is removed. The action of the heart is further found to continue much longer when a lethal dose of chloral is administered together with atropia. In rabbits the same result is produced by the conjoined administration of the two agents.

Atropia is found to prolong the chloral narcosis several hours in rabbits, and diminishes the sensibility to pain. In man the excitant action of atropia hinders the occurrence of the chloral narcosis, but rather deepens the sopor when it at last supervenes. The effects of atropia last much longer, and are, apparently, in no way prevented by chloral.

Morphia deepens in every way the effects of chloral. Dr. Bartholow found, in the course of some

experiments on himself, that many of the unpleasant effects of morphia are modified, as regards the wakefulness caused by the latter, but are not modified as regards the subsequent nausea, vomiting, vertigo, and constipation. When the two agents are administered conjointly, a much less quantity of chloral is necessary in order to produce sleep.

These agents act much more happily when administered simultaneously. Chloral causes sleep, morphia relieves pain, and atropia prevents or lessens the depression in the respiratory and cardiac movements caused by the other two, whilst it contributes to their cerebral effects.

These physiological studies are confirmed by the therapeutical results. The combination of chloral, morphia, and atropia is adapted to those cases of insomnia caused by pain, or in which chloral and morphia alone merely increase the cerebral excitement, as in hypochondria, puerperal mania, etc. This combination is also indicated in cases of fatty and irritable heart.

When pain is to be relieved, chloral is not so serviceable alone as in combination with morphia and atropia. The local administration—that is, the insertion of the medicament at the site of pain—is more effective than the merely systemic impression. This is especially the case in tic douloureux, sciatica, and coccydynia, which are much more effectively treated by injections practised into the neighbourhood of nerves which are the seat of pain. The combination of local irritant and benumber with a systemic anodyne is more curative than either used singly.

In cases of muscular spasm, the author of the paper had obtained excellent results from the combined use of chloral, morphia, and atropia, and he especially called attention to the efficacy of these agents in the cramps of cholera. Many cases of spasmodic asthma and hay-fever had been benefited by their conjoint administration.

DEXTER ON REST IN THE TREATMENT OF CHOREA.—Dr. Ransom Dexter (*Chicago Journal of Nervous and Mental Disease*) reports the case of a girl, aged thirteen, whose health was impaired by hard study at school, and who finally became choreic. The treatment at first adopted consisted in the administration of extract of valerian and cimicifuga twice a day, the elixir of pepsin, bismuth, and strychnia before each meal, and bromide of potassium and cannabis Indica at bedtime. In a few days she grew worse, and some malarial periodicity was noticed. It was then decided to try cautiously small doses of quinine and iron, but when only four grains of the former had been administered the following symptoms ensued: hemiplegia of the left side, dilatation of the pupils of both eyes, some choreic movements during sleep, increasing so much when awake that the patient was unable to sit up, but had to be held down on the bed or lounge. In reviewing the case, which had then become very serious from the general failure of the vital powers, Dr. Dexter arrived at the following conclusions.

1. All the sensorial ganglia, or the centres for the nerves of the separate senses, were more or less affected; and that the sensori-motor centres were the special seat of the disease.
2. The pathological condition could not be other than an asthenic irritation of the sensori-motor organs.
3. These organs must have physiological and therapeutical rest.

Carrying out these ideas, he ordered the patient to be kept in a darkened room; to lie as still as possible upon a lounge; to be waited upon only by her parents, who were to maintain the strictest quietude; and to be positively silent herself. In addition, the valerian, cannabis indica, and bromide were continued, with an occasional cathartic to act as a revulsive. In eight hours a noticeable improvement had ensued, and in twenty-four hours had become very decided. In six days all choreic movements had disappeared.

NOTES OF PRACTICE AND PECULIARITIES IN TREATMENT (BROOKLYN CITY HOSPITAL).—As a dressing (says the reporter in the *New York Medical Record*), the surgeons are very partial to styptic cotton, especially for chronic ulcers; first scarifying the surrounding tissues, applying a layer of the cotton, and strapping over this. The rapidity of cure is sometimes wonderful. Besides the power of healing, its antiseptic properties are good.

As a general local application for chancres and syphilitic eruptions, the following is used with marked success:

Ungt. zinci oxidi,
,, hydrarg. chlor. mitis, aa;

while for internal use the ward prescription is,

Hydrarg. biniodidi . . . gr. ij.
Potass. iodidi . . . ʒss.
Syr. sarsap. co.,
Aque, aa . . . ʒij.
M. ʒj. ter die.

Iodoform locally applied, after cauterising a chancre, seems to have a good effect. Oleate of mercury in the treatment of orchitis is used with benefit. Applied locally to the indurated testicle, absorption is often rapidly promoted, though its irritating effect to the skin is not pleasant.

As a treatment for specific bubo, ungt. hydrarg. locally applied, alternated with

Tincture of iodine . . . ʒiv.
Glycerine . . . ʒij.

M. Painted over the indurated glands.

In simple bubo, glycerine, externally, has been used with good results.

In phagedenic bubo, tartrate of iron and potash, internally and externally, is exclusively used.

Internal urethrotomy is employed in most cases of stricture with, as yet, no unfavourable symptom.

Hydrate of chloral has been used satisfactorily as an antiseptic lotion, gr. xx to the pint.

An interesting case of hydro-hæmatocele was admitted to the hospital. The patient was tapped for hydrocele in a New York dispensary. According to his statement he was cut twice, the first one being a dry tap, the second bringing blood. He was then sent home. Considerable hæmorrhage followed, and he was brought to the hospital showing signs of excessive bleeding. The scrotum was eighteen and a half inches in circumference, four times the size it was before the operation, and bleeding from two incisions. Hæmorrhage was controlled by pressure and cold applications. A few days after admission the scrotum was laid open, when it was found that the tunica vaginalis had not been pierced; the blood was external to the sac.

Delirium Tremens.—Treatment in these cases is very unsatisfactory; probably the most reasonable way is to give sixty grains of bromide of potassium, followed in an hour by twenty grains of chloral hydrate every fifteen minutes until three doses are

taken. If sleep be not produced, the medicine is to be discontinued and plenty of nourishment given, leaving the patient to wear it off.

Acute Dysentery.—Iced-water injections, with suppositories of morphia, and bismuth given internally, sometimes produce a rapid cure.

WALKER ON INOCULATION WITH BEE-POISON.—Mr. G. Walker, in the *British Bee Journal* (December 1, 1874), opens up the question as to whether immunity from the pain and other injurious effects of the sting of the bee can be obtained by inoculation. Visiting the Hanwell Apiary, he was struck with the mode in which the owner managed his bees, and asked him the length of time it required to render a person sting-proof. The reply was, that the son had only been a short time working with bees, and that he was quite free from any of the usual effects of bee-stings. Mr. Walker made the experiment upon himself, his *modus operandi* being to catch a bee, place it upon his wrist, and allow it to sting him, taking care that he received the largest amount of poison, by preventing it from going away at once; then he let the poison-bag work, which it does for some time after being separated from the bee. The first day he stung himself twice. The effect was rather severe cutaneous erysipelas, and disorder of the motor nerve, with the usual signs of inflammation. A few days having elapsed, and the symptoms having subsided, he caused himself to be stung again three times in quick succession. The attack of erysipelas was on this occasion not nearly so severe; still a stinging sensation ran up to the shoulder, and a lymphatic gland behind his ear increased considerably in size, the poison being taken up by the lymphatic system. A few days subsequently he was stung thrice, and the pain was considerably less though the swelling was still extensive. At the end of the next week he had had eighteen stings, and by the close of the third week thirty-two stings. After the twentieth sting there was very little swelling or pain, only a slight itching sensation with a small amount of inflammation in the immediate neighbourhood of the part stung, which did not spread farther.

RECENT PAPERS.

- On Neurotics. By Dr. John C. Peters. (*The Psychological and Medico-Legal Journal*, December, 1874.)
On Monobromide of Camphor. By M. E. Perret, (*L'Union Médicale*, December 24.)
Alcohol and Energy. By Douglas Morton, M.D. (*American Practitioner*, December, 1874.)
The Digitalines. By M. E. Ferrand. (*France Médicale*, December 16.)
On the Therapeutic Action of Podophyllin. By Dr. Kobryner. (*Bulletin Général de Thérapeutique*, December 30, 1874.)
The Efficacy of Mercury in Psoriasis and Eczema. By M. Gubler. (*Journal de Thérapeutique*, December 25.)
Experimental Researches on certain Effects of Apomorphine during the Anæsthesia produced by Chloroform. By MM. Coyne and Buden. (*Gazette Médicale de Paris*, December 26.)

MISCELLANY.

At the last meeting of the Paris Academy of Sciences, M. de Lesseps announced the capture of a female shark in the Suez Canal, containing in its abdomen twelve young sharks, all living, and varying in length from twenty to twelve centimètres. This fact, in the opinion of M. de Lesseps, tends to show that the shark is truly viviparous.

NEW FRENCH FACULTIES OF MEDICINE.—The French National Assembly has sanctioned the creation of two new faculties of medicine, one at Lyons, the other at Bordeaux. The same privilege was nearly accorded to Lille, but was finally refused in deference to the clerical party, who are there organising a faculty of medicine in harmony with the new law on the liberty of University teaching.

THE DOCTRINE OF HEREDITY.—Mr. Galton, in his recently published work, *English Men of Science, their Nature and Nurture*, gives the number of notable relatives of each grade which scientific men on the average possess. Thus, 100 scientific men have 28 notable fathers, 36 brothers, 20 grandfathers, and 40 uncles. The influence of the paternal and maternal lines is found to be approximately equal. Thus, 100 scientific men have 34 distinguished relatives on the paternal side, and 37 on the maternal side.

NEW YORK STATE INEBRIATE ASYLUM.—From September 1, 1873, to September 1, 1874, the number of patients admitted was 190, of which 23, or 13½ per cent. proved refractory and unsubmitive. The rest quietly submitted to the rules and discipline of the institution, and many have gone out, as is believed, fully restored. Measures are now being taken to inquire into the subsequent history of all those who have been inmates of the institution, to be embodied in the next annual report of the board of managers. Of these 190 inmates one has returned the third time, and sixteen are in their second term of treatment.

LYING-IN DISPENSARY AT KIEW.—The Faculty of Medicine of St. Vladimir, at Kiew, has just decided on creating a lying-in dispensary attached to the hospital service, for diseases of women and lyings-in. The object of this dispensary is to give to the whole of the poor population of Kiew the power, in case of necessity, in confinements, to obtain the advice of the principal physician or the principal obstetrician of the University. These functionaries will, on a requisition being made to them, send to the lying-in woman a medical student and a certificated midwife, who will take with them all necessary appliances. If the delivery prove too laborious or difficult, and an obstetrical operation be thought necessary, the principal obstetrician, on the requisition of the medical student in attendance, must perform it gratuitously; and should any illness follow the delivery, medicine will be given to the sick woman gratis.

HEREDITARY CRIME.—At a meeting of the State Charities Act Association of New York, Dr. Harris brought forward a remarkable history of a family which had pursued its unhappy career of crime and misery through six generations. It appears that some seventy years ago a young girl, named 'Margaret,' was left adrift in one of the villages in a county on the Upper Hudson—it does not appear whether through the crime or misfortune of others. There was no almshouse in the place, but she was a subject of outdoor relief, probably receiving occasionally food and clothing from the officials, but never educated, and never kindly sheltered in a home. She became the mother of a long race of criminals and paupers, and her progeny has cursed the county ever since. The county records show 200 of her descendants who have been criminals. In one single generation of her unhappy line there were twenty children; of these three died in infancy, and seventeen survived to maturity. Of the seventeen, nine served in the State prisons for high crimes an aggregate term of fifty years, while the others were frequent inmates of gaols and penitentiaries and almshouses. Of the 900 descendants through six generations from this unhappy girl, who was left on the village streets and abandoned in her childhood, a great number have been idiots, imbeciles, drunkards, lunatics, paupers, and prostitutes; but 200 of the more vigorous are on record as criminals.

DRINK.—Some extraordinary instances of the insatiate desire, or rather morbid impulse, to drink are mentioned in a paper on the *Insanity of Inebriety*, by Dr. George Burr, published in the *New York Psychological and Medico-Legal Journal* of December, 1874. Dr. Bush records a case in which he says, in reference to an habitual drunkard in Philadelphia, who, when strongly urged by one of his friends to leave off drinking, replied, 'Were a keg of rum in one corner of a room, and were a cannon constantly discharging balls between me and it, I could not refrain from passing before that cannon in order to get at the rum.' One of the cases described by McNeish, in his *Anatomy of Drunkenness*, as quoted by Dr. Ray, also illustrates this feature. A friend of the subject of it painted to him 'the distresses of his family, the loss of his business and character, and the ruin of his health,' to which he replied, 'My good friend, your remarks are just; they are indeed too true; but I can no longer resist temptation. If a bottle of brandy stood at one hand, and the pit of hell yawned at the other, and I were convinced that I would be pushed in as sure as I took one glass, I could not refrain.' The late Professor R. D. Mussey, of Cincinnati, relates another case: 'A few years ago a tippler was put into an almshouse in this State. Within a few days he had devised various expedients to procure rum, but failed. At length, however, he hit upon one which was successful. He went into the wood-yard of the establishment, placed one hand upon the block, and with an axe in the other, struck it off at a single blow. With the stump raised and streaming, he ran into the house and cried, "Get some rum! get some rum! my hand is off." In the confusion and bustle of the occasion a bowl of rum was brought, into which he plunged the bleeding member of his body; then raising the bowl to his mouth, drank freely, and exultingly exclaimed, "Now I am satisfied!"' Dr. J. E. Turner relates a case of a gentleman, who while under treatment for inebriety during four weeks secretly drank the alcohol from six jars containing morbid specimens. On asking him why he had committed this loathsome act he replied, 'Sir, it is as impossible for me to control this diseased appetite as it is for me to control the pulsations of my heart.'

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The London Medical Record.

WEDNESDAY, JANUARY 13, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

CANTIERI ON THE ACTION OF CANTHARIDES AS A VESICANT AND RUBEFACIENT.

In his article on cantharides, in *Lo Sperimentale* (already quoted in the LONDON MEDICAL RECORD for December 23, p. 803), Dr. Cantieri makes the following remarks on the local action of cantharides.

Physicians apply blisters as a means of revulsion. What is this revulsion? Schiff, after having opened the thorax of a frog and laid the heart bare, struck the animal's abdomen with a small instrument, and saw the heart become small, pale, and bloodless, until at last its action altogether ceased. He then divided the aorta; only a very little blood escaped, which had been arrested in it. On opening the abdomen, he found its vessels extremely dilated (*Lezioni di Fisiologia Sperimentale*, compilata dal Dott. P. Marchi, Firenze, 1866). This is precisely what revulsion is.

Revulsives can only exert their action on removable elements, such as the blood and, perhaps, the contents of the lymphatics. Primary hyperæmiæ, or those which form the first element in inflammation, or the simple passive hyperæmiæ sometimes met with, are the only ones which can be removed by revulsives. And, in fact, we see certain states of hyperæmia produced by insolation, or by the abuse of alcohol, overcome by pediluvia of water, either simply warm or with mustard added to it, or by the action of stimulant frictions over the whole cutaneous surface of the body. I believe in the truth of revulsion; in the fact that a quantity of blood flowing to a part of the body may, by means of an irritant, be removed and conducted to another point.

But when inflammation is already developed, if the red and white corpuscles and the plasma have passed through the walls of the capillaries, and have already produced an increase in the size of the affected part, if, finally, what we call inflammatory exudation have taken place, then revulsion is altogether impossible. This stage of inflammation requires a special process for its completion. Either resolution, suppuration, induration, or gangrene takes place.

The agent of revulsion should be in proportion to the quantity of material that can be removed. Velpeau and Gendrin believed this to such an extent, that they applied blisters of enormous size; the former to a limb, to cut short a phlegmon, the latter to one-half of the chest, to subdue pleurisy or pneumonia. I do not very well know what effects they obtained; but, without referring to the experiments which I have performed, and judging solely from clinical experience, I much believe that, if the final result were successful, the direct effect on the part, and the indirect ones upon the internal organism, must have been very severe. And this is

because the revulsive action cannot be separated from the other action which depends on the absorption of the elements of cantharides—the alteration and destruction of the blood-corpuscles, along with the alteration of structure and disturbance of function of the nervous centres. I do not believe that the abuse of a remedy is justifiable, when there is reason to fear that it will injure to such an extent as to put the patient's life in danger in place of overcoming his disease. On the contrary, it is the duty of the physician to select other means, which are free from danger, although their action is less certain.

The method of Velpeau and Gendrin is simply substitutive medication—that is to say, the excitation of a visible external inflammation for the purpose of overcoming an internal one.

But such a mode of treatment is objectionable. There is not the least doubt that revulso-substitutive medication must always aggravate the condition of the patient, inasmuch as it develops a new focus of disease, it may be, indeed, external, of which it is not within the power of the physician to limit the extent or to moderate the effects which it must necessarily produce on the whole organism; and, in my opinion, such treatment must always be injurious, however pursued, and especially when blisters of cantharides are used for the purpose. For the good of humanity, the revulso-substitutive treatment ought to be eradicated from the list of remedies.

Besides substitution, revulsive medication comprises also rubefacient action; and this, being useful in certain conditions, may still be employed.

The action of a vesicant on the skin is eminently irritative. A few hours after its application it produces pain, redness, slight tumefaction of the part, then sero-albuminous exudation with raising of the epidermis, first into small vesicles, which become confluent and are united into a large blister. These effects are more or less active, more or less painful, according to the delicacy of the organism and to the morbid predisposition of the individual to whom the vesicant is applied. In slender, weak, and nervous females, we sometimes meet with lipothymia, or with convulsions, dependent, probably, on the pain produced by the vesicant. In lymphatic and obese individuals, on the other hand, vesicants, even when applied but for a short time, have been known to produce serious suppuration and sores difficult of healing; and in cases of typhoid fever, or of debility connected with subcutaneous serous exudation, extensive and deep sloughing, leading to pyæmia, ichorrhæmia, and death, has been produced.

The physician who judges it necessary to employ cantharides as a rubefacient, must attend to the following conditions.

1. To keep the vesicant applied for as short a time as possible; since its prolonged contact with the skin may lead to the absorption of a large quantity of the active principle of the cantharides, and to its consequent effects on the organism. In some cases, a large blister has risen some hours after the removal of the vesicant; the action is then destructive, and all the results above enumerated may arise.

2. Not to apply it to nervous, slender, and delicate individuals, in order to avoid the perverting effect of cantharidine and the debilitating effect of pain.

3. Not to apply it to patients suffering from fever arising from infection of any kind, lest, besides adding a toxic element to that which already exists, grave new changes be produced.

4. Not to apply it to persons suffering from chronic

heart-disease or other maladies attended with œdema or anæmia, and with great tendency to inflammation of the skin.

Putting aside these cases, I think that vesication with cantharides may be useful in medicine as a rubefacient in simple venous hyperæmia or stasis, such as arise from insolation, from the temporary abuse of alcoholic liquors, from heart-disorders, and other affections of this kind. But, although I would not absolutely oppose the use of cantharides, I would prefer sinapisms, or simple or sinapised pediluvia, frictions of the skin, and other kinds of irritants which are not attended with danger.

Finally, the following conclusions arise from the facts which I have studied and analysed.

1. Vesicants do not sustain or excite the action of the heart and vessels, but rather weaken and depress it.

2. The stimulant action on the heart seems to be better explained by the action of remedies administered internally, such as wine, ether, etc., than by that of the vesicants.

3. Vesication with cantharides is absolutely contraindicated in all cases of dropsy arising from active or passive hyperæmia of the kidneys; because the drug, exercising its irritant and perverting action on these secretory organs, augments the afflux of blood and thereby aggravates the morbid condition. Such treatment is to be absolutely prohibited in dropsies attending Bright's disease or cardiac disorders, especially if the presence of albumen in the urine intimate the existence of renal stasis.

4. Substitutive treatment cannot be carried out, since, besides the mischief arising from the extensive local action of a vesicant, there are the evils which may be produced from the absorption of the cantharides.

5. Vesication may be used as a rubefacient under the conditions already described.

6. In applying rubefacient treatment, it is best to have recourse to other irritants, such as sinapisms, pediluvia, etc.

7. In general, vesicants cannot be applied to the treatment of acute diseases without injury to the patient. They cannot be used in typhoid and in other infective fevers, in which an adynamic and ataxic state prevails, inasmuch as, in consequence of the absorption of the active principles of the cantharides, the blood-corpuscles are changed, the contractile power of the heart is diminished, and one infection is added to another; while on the other hand, changes are produced in the cerebro-spinal centre, which give rise to disorders of the vital functions dependent on them. Vesicants cannot be applied in any stage of inflammation, since they increase the hyperæmia, destroy the contractility of the vascular walls, and paralyse the vaso-motor nerves; or by altering the blood-crisis, they may produce changes in the products of inflammation. Finally, they favour cardiac collapse, instead of preventing it, as has been believed. A. HENRY, M.D.

ON ALIMENTATION IN DISEASE.

By DR. AUSTIN FLINT.*

Chomel, in his admirable treatise on General Pathology, defines the art or the practice of medicine to be the application of good sense to the treatment

of diseases. He adds that knowledge of diseases is indispensable, but good sense ranks first in importance. I give the literal translation of the French term, in preference to the phrase 'common sense,' which is generally used with us, inasmuch as good sense is rather uncommon than common. This definition by Chomel is not less just than striking. The ablest practitioners in the different departments of medicine have always been those who, in addition to an abundance of knowledge, possessed in an uncommon degree good sense. This is as true now as hitherto. How often do practitioners, by no means deficient in medical knowledge, fail in practice because they lack good sense! and, on the other hand, good sense often compensates to a considerable extent for deficiency in medical knowledge. The great improvement which has taken place within the last quarter of a century in the practice of medicine, as regards the employment of remedies, and, still more, the hygienic management of diseases, is due not less to the agency of good sense than to pathological researches. Good sense restrains the formation or adoption of baseless speculations and immature doctrines; it prevents one-sided and extreme views; it opposes alike presumptuous innovations and bigoted conservatism; it keeps within proper bound reliance upon others and self-reliance, discouraging equally blind partisanship and dogmatic egotism; and, finally, good sense is the true genius of medical experience. With these preliminary remarks, I proceed to submit to the good sense of those whom I address some considerations relating to an important subject in practical medicine, namely, Alimentation in Disease.

As conducive to a proper appreciation of the importance of alimentation in disease, the natural history of starvation is to be considered. The immediate effects of starvation are, of course, most rapidly produced and most strikingly manifested when all aliment is withheld. The blood is notably diminished and impoverished, emaciation is rapidly progressive, and death, according to the painful experiments of Chossat on inferior animals, takes place when the body has lost one-fifth or one-fourth of its weight in health. The more obvious phenomena attendant on these immediate effects are as follows. Febrile movement frequently occurs, although the temperature of the body is greatly reduced before death; muscular debility is speedily a marked symptom, and is soon followed by great prostration; the circulation is more and more enfeebled; there is inability to sleep; the moral sentiments are perverted, and, after a time, there is delirium, which is sometimes active and sometimes passive; diarrhœa often occurs, and the breath becomes intolerably fetid. The average duration of life, the complete deprivation of aliment being understood to include water, varies from five to eight days. The mode of dying is typical of slow asthenia, or exhaustion. The phenomena are essentially the same, but the duration of life is considerably longer, if water be not withheld.

The phenomena of starvation are not confined to cases in which there is complete deprivation of aliment. This is a fact highly important in its bearing upon alimentation in disease. Starvation is produced whenever the aliment is insufficient, either as regards quantity or quality, for repairing the losses which the blood sustains in supplying to the solids materials for nutrition. The phenomena of starvation are essentially the same as when all nourish-

* Reprint of a paper read before the Medical Society of the County of New York.

ment is withheld ; the only difference being that they are developed more or less slowly, they are consequently less striking, and their connection with deficient alimentation is liable to be overlooked. Another fact relating to starvation also has an important bearing on alimentation in disease—certain portions of the body may suffer from the want of materials in the blood proper for their nutrition, while other portions of the body are sufficiently nourished. To quote the language of the author of an able essay on 'Army Alimentation,' 'Starvation is a comparative phrase. We can starve muscle by withholding nitrogen. We can starve the fats of the body, and destroy the animal heat, by withholding carbon. So, too, we can starve the brain by withholding phosphorus ; and starve the blood by failing to supply it with those salts of lime, potash, soda, iron and magnesia, which are essential to its healthy condition.*'

Recognising the fact that the term starvation comprehends all degrees of innutrition between the extreme degree produced by the deprivation of all aliment, and the opposite extreme caused by a slight diminution of the alimentary supplies requisite for the wants of the body, and, also, that certain parts may be starved while other parts are amply nourished, I proceed to state another fact, the practical bearing of which on alimentation in disease will be at once apparent. Starvation may be produced in persons affected with different diseases, as well as in healthy persons. There is nothing in disease to prevent starvation or its immediate effects. Starvation is sure to occur in cases of disease, in a degree proportionate to the lack of material for nutrition in the blood ; in other words, in proportion as the requisite amount of aliment is either not ingested or not assimilated. The immediate effects and the attendant phenomena are the same when starvation occurs in connection with disease, as when it is produced in persons previously in health. Impoverishment of the blood, emaciation, febrile movement, followed by a reduction of the animal temperature, feebleness of the circulation, vigilance, perversion of the moral sentiments, delirium, diarrhoea, and fetor of the breath may be attributable, in cases of disease, to starvation. In connection with all diseases, more or less of the morbid phenomena present arise from starvation, and these phenomena are prominent and grave in proportion to the degree in which either alimentation or assimilation is defective. Chossat has enunciated truths in language which enforces their importance, when he says, 'Starvation is a cause of death, marching silently in front with every disease in which alimentation falls below the natural standard. It reaches its natural termination sometimes sooner and sometimes later than the disease which it covertly accompanies ; and it may supersede the disease of which, at first, it was merely an incidental element.' Starvation is often the immediate cause of death, when diseases destroy life by slow asthenia or exhaustion. If a fatal termination be not due to a direct interference with the action of the heart, or with respiration, it is correct to say, that patients die because they are starved to death. Certain it is that diseases which do not compromise directly the function of either the heart or

lungs, cannot kill so long as the nutrition of the body is maintained at a point compatible with life. Starvation, associated with disease, may be inevitable ; that is, the disease may involve an insuperable obstacle to either the ingestion of aliment, or its assimilation. Then it is that, in the language of Chossat, inanition may reach its termination sooner than the disease. On the other hand—and here is a fact full of practical import—starvation may not be a necessary effect of the existing disease, but may be due to insufficient alimentation. In such cases, inanition may prove a cause of death when the disease need not have destroyed life ; the patient, indeed, may die of starvation notwithstanding the progress of the disease *per se* be favourable. Then, in the language of Chossat, inanition 'reaches its natural termination later than the disease which it covertly accompanies, and it may supersede the disease of which, at first, it was merely an incidental element.'

On these facts pertaining to starvation, rest the practical considerations relative to alimentation in disease, which I shall now proceed to submit.

A logical inference from these facts is, that to prevent starvation is of fundamental importance in the practice of medicine. The importance of this object in the treatment of individual cases of disease, is to be estimated by the amount of impending danger from starvation as an incidental element. All who hear me are doubtless familiar with the teachings of Graves, with respect to alimentation in the continued fevers. Graves states that he was first led to appreciate the importance of giving nutritious food in cases of fever, by the remark of a shrewd country practitioner, who said that, in his practice, patients generally recovered if he could prevent them from being starved to death. Graves inaugurated a great reform in the treatment of fevers as regards alimentation ; and as proof of the strong conviction in the mind of this distinguished clinical teacher of the improvement in practice which dates from his publications, he is said by his co-worker Stokes to have declared that he could desire no better epitaph than, 'He fed fevers !' Few, if any, practitioners at the present day are disposed to undervalue the importance of alimentation in the essential fevers ; but it is not less important to prevent, if possible, death from starvation in all other diseases. If to die by slow asthenia be often virtually to starve to death, then, no matter what the disease may be, it is an object of fundamental importance to promote, as far as practicable, the assimilation of food. Looking at the object of treatment in another point of view, it is customary to say that the powers of life are to be supported in proportion to the danger of death by asthenia, whatever be the nature or seat of the disease. Now, of supporting measures, alimentation holds the front rank, not depreciating the importance of stimulants, especially alcoholics, which it is foreign to my present purpose to discuss.

Admitting the fundamental importance of alimentation in the treatment of diseases, the inquiry arises, what are its limitations ? In answer to this inquiry, it is to be stated that, if we except the early stage of some acute diseases in which it may be an object to withhold aliment with an indirect reference to depletion, there is never any risk of hypernutrition. With the exception just stated, I submit the proposition that it is always desirable, in cases of disease, to supply aliment to the fullest extent of

* Dr. S. B. Hunt, vide *Sanitary Memoirs of the War of the Rebellion*, vol. i. of the series published by the U. S. Sanitary Commission.

the capacity of the organism for appropriation. In acute diseases, the failure of the vital powers is forestalled in proportion as nutritive supplies are assimilated. This is simply saying that the assimilation of nourishment is indispensable for the preservation of the powers of life. And when, in the progress of an acute disease, more or less failure of the vital powers ensues, the more nutrition can be maintained, the more efficient the support. The proposition just submitted embraces not only the acute but the chronic diseases. No matter what may be the seat or the nature of the chronic affection, a diet fully up to the capacity of the organism for nutrition promotes recovery, if recovery be possible, and, if recovery be not possible, by increasing the ability of the system to endure the affection, contributes to prolong life. The limitations to alimentation, therefore, relate wholly to the physiological processes which are preliminary to nutrition, namely, digestion and the other processes by which aliment is converted into blood. If more food be ingested than the digestive organs can prepare for assimilation, or if the articles of diet be not suited to the digestive powers, the nutrition will not be in proportion to the alimentation, and disorder of the digestive organs may be produced. This is, of course, if possible, to be avoided; yet, the harm resulting from over-alimentation is generally exaggerated. Undigested aliment often passes through the alimentary canal without causing any appreciable disturbance. The disorder which may be produced is due chiefly to chemical changes in the ingesta, and is manifested by flatulence, pain, and looseness of the bowels. Conservatism is seen here as in other morbid effects. As the result, the offending matter is expelled, and the harm is, in general, not more than that caused by a cathartic or laxative. It is quite superfluous to say that to avoid over-alimentation may be highly desirable, but it is sometimes safer to incur risk in that direction, than to limit alimentation below the ability of the digestive powers and the capacity of the organism for nutrition. What rules are to govern the practitioner in so regulating alimentation in disease as to avoid the evils, on the one hand, of starvation, and, on the other hand, of disorder of the digestive organs? To treat of the numerous topics which this question opens up, is impossible within the limits of a brief discourse. In the few moments remaining of the time to which I have restricted myself, I can only submit, without discussion, some of the considerations suggested by the question. An unwillingness to presume upon the patience of my auditory must be my apology for offering statements open to criticism on the score of their having the character of aphoristic propositions.

As the first in rank of supporting measures in the management of the essential fevers and all acute diseases which endanger life by asthenia, it is often necessary to regulate alimentation without regard to indications afforded by appetite or taste. In many cases of disease, owing to bluntness or perversion of the mental perception, the wants of the system as regards nutrition are not indicated by a desire for food, or by choice in its selection and preparation. Patients not infrequently die of starvation without having experienced any sense of hunger. Under such circumstances, the rule is to supply, not only as much aliment as the digestive organs can prepare for assimilation, but food containing, in proper amounts, all the alimentary principles required to repair the waste of the different parts of the organ-

ism. Limiting alimentation to an article of food inadequate as regards the different alimentary principles which it contains, will not prevent starvation, no matter how abundantly the article is ingested. For example, patients may be starved to death on the juice or a decoction of beef given without stint and digested. The risk of starvation is much greater if the diet be restricted to substances less nutritious, such as gelatin, albumen, starch, or gum. The valuable experiments of Hammond and others have established the fact that the last three of these alimentary principles, namely, albumen, starch, and gum, singly, are wholly inadequate to nutrition; and the inadequateness of gelatin was long ago settled by the famous Gelatin Commission in Paris. Under the circumstances stated, the diet should not only embrace the requisite variety of alimentary principles, but food must be given in a concentrated and liquid form. Milk, *par excellence*, has these recommendations, and is, therefore, of all articles of diet, in fevers and other acute diseases, to be preferred. The alimentation is rendered more effective by the addition to milk of a farinaceous substance, and by alternation with animal broths, or the essence of meat. Eggs, also, form an excellent article of supporting diet, owing to the fact that they contain the requisite variety of alimentary principles combined by the hand of nature. Whenever alimentation is a measure of support, that is, whenever there is danger, either immediate or remote, from starvation, an important rule is to allow always, after food has been given, a sufficient period to judge whether or not it produces disorder of the digestive organs. The intervals should be from three to four hours. If food be given every hour or half hour, as is often done, the organs of digestion have no period of rest, and it is impossible to form any judgment concerning the digestive powers. Moreover, after intervals sufficient to allow rest, food is more likely to be digested. A grave objection to giving food after very short intervals, is that it involves interference with sleep and occasions both physical and mental annoyance. By allowing sufficient intervals, the quantity of food may be graduated to the digestive powers, and thus disorder from over-alimentation avoided.

An important rule of alimentation in fevers and acute diseases, relates to variation in the articles of diet and in the preparation of food. Any article, prepared in a certain mode, and given, without change, day after day, becomes, after a short time, offensive and disgusting. The patient takes it, not merely with indifference or against inclination, but with strong aversion; and this is an evil, not alone on the score of difficulty and annoyance in giving nourishment, but because, under these circumstances, the digestive organs, as well as the palate, rebel against it. Variations may be made by giving, on successive days, the decoction or juice of different kinds of meat; by adding to milk different farinaceous substances, and by different modes of preparation. This rule, like most other dietetic rules, will not be carried out unless the practitioner be precise and enter into minute details in his directions concerning alimentation. Persons upon whom devolves the nursing of the sick, often attach little importance to the diet; they are apt to imagine that everything depends on remedies. The physician not infrequently meets with opposition to his measures of alimentation, arising from a prejudice against feeding patients. It has been a popular notion that

starvation, so far from being the mode in which diseases are apt to kill, is a means of cure. Like other popular notions concerning diseases, this doubtless was derived from the medical profession. It is but a short time since the *cura famis* was relied upon in the treatment of most of the acute and many of the chronic diseases. Notions thus derived are often retained in the popular mind long after they have been abandoned by the profession. The introduction by enema of aliment, when it is not retained by the stomach, is often highly important.

Whenever patients desire certain articles of food, as a rule, these are to be allowed. Such a desire, if distinct, represents generally a want of nutrition, more reliable than the judgment of the physician as to the articles best suited to the case. Every one has heard of instances in which patients have craved articles of food considered as extremely inappropriate, but the cravings being indulged, perhaps without the sanction of the physician, marked improvement immediately followed. Remarkable instances of this kind are undoubtedly authentic, and they are striking illustrations of the soundness of the rule just stated. This rule is in conflict with a popular notion, for the origin of which the profession is doubtless responsible; namely, that in cases of disease the instinctive desires are morbid, and are to be opposed rather than indulged.

Alimentation, as a measure of support, is more important in cases of disease affecting the young and the aged, than during the intervening periods of life. This is consistent with the fact that starvation kills children and old persons more quickly than those who have attained to full development and who are not in advanced years. Of the 150 persons who, after the wreck of the frigate *Medusa*, were exposed on a raft for thirteen days, with hardly any food, children, young persons, and the aged, were the first to die from starvation.*

During convalescence from fevers and other acute diseases, the ordinary articles of solid food should be allowed, as soon as they are desired. Convalescence is protracted by the continuance of a liquid diet, and by an insufficient alimentation. The kind of food may, in general, be safely left to the choice of the patient, and the quantity is to be graduated by the activity of the digestive powers and of nutrition. The risk of over-alimentation during this period is often exaggerated; and, with reference to alimentation, as well as to other measures, it is to be considered that after many diseases, for example, the continued fevers and pneumonia, the liability to relapse is exceeding small.

In the management of chronic diseases, measures aside from alimentation, whether medicinal or hygienic, are serviceable in proportion as they contribute to digestion and nutrition. Whatever be the nature of the chronic disease, or wherever it be seated, it is always an object of fundamental importance to keep nutrition as near as possible to the standard of health. The rules of alimentation, therefore, in cases of chronic disease, relate to the most efficient means of effecting this object.

Medicines not infrequently impair the appetite and interfere with digestion. If not required for a special curative effect, they are then likely to do harm by compromising, more or less, alimentation and nutrition. Hence, in fulfilling therapeutical indications, an important rule is to select remedies or phar-

maceutical preparations which are not offensive either to the palate or to the stomach. In prescribing remedies, allowance is always to be made for the wide difference among different persons as regards the gustatory and gastric sensitiveness to medicines. The over-drugging which formerly prevailed was in no small degree objectionable on account of its effects on appetite and digestion, aside from other effects. In this aspect, the use of drugs with far more discrimination and reserve now than formerly, is a great improvement; so, also, is the use of concentrated remedies, the preparation of medicines in agreeable forms, and the hypodermic administration of certain articles.

Efficient alimentation in cases of chronic disease is often impeded by prevalent popular errors. The notion that starvation is a means of cure, to which allusion has already been made, operates largely against an analeptic diet. Another popular notion is that the restriction of diet to a very few articles, and to the same articles continuously, is desirable; whereas, nothing is more certain than that a varied diet is most conducive to digestion and nutrition. As results of these errors, it is not uncommon for persons with some chronic ailment, and even healthy persons, not only to become feeble and anæmic, but to suffer, more or less, from the blood-changes which are embraced under the name scorbutus. Chronic affections are in this way protracted, the ability of the system to bear them is impaired, and serious ailments are thereby superadded. Other absurd popular errors relate to supposed individual peculiarities. Many persons seem to be pleased with the idea that articles of diet which are wholesome for mankind in general are pernicious to them. Practitioners daily meet with cases illustrating this strange manifestation of egotism. How often do we hear the trite saying that 'what is one man's meat is another man's poison,' a maxim which has very little foundation in truth. I suppose every one present has often met with objections to milk and eggs, which, as representing all the constituents of the organism, may be called the typical foods, on the ground that they are apt to promote biliousness! It will be a great gain, as regards alimentation in chronic diseases, when these and other errors of the same sort are completely eradicated from the popular mind.

It is highly important to consider the influence of the mind on appetite and digestion, and thereby on assimilation and nutrition. Not a small number of the disorders referable to impoverishment of the blood and innutrition are traceable to mental depression, which sustains to various disorders the relation of both cause and effect. Hence, in great part, the advantage, in many cases, of change of scene and new associations, the benefit being derived through the mind. Hence, the greater success of those physicians who take proper cognisance of the mental condition, in these cases, as compared with those whose professional offices are limited chiefly to prescribing drugs. Hence, too, the marvellous effect often of judicious encouragement, on the part of the physician, for mental depression in many cases relates to apprehensions which are either groundless or greatly exaggerated. The influence of the mind upon digestion is strikingly shown when, unhappily, patients have fallen into the habit of concentrating the attention upon the sensations which follow the ingestion of different articles of diet. If food be taken with distrust and anxiety lest

* *Physiology of Man.* By A. Flint, jr., vol. ii. p. 16.

it prove hurtful, the chances are it will give more or less trouble; and if taken with a pre-conviction that it will do harm, this result will be pretty sure to follow.

Having reached the end of the time which I resolved, on commencing to write, that I would not exceed, I must leave untouched many of the topics which suggest themselves in contemplating the subject of this discourse. The few and somewhat desultory considerations which have been submitted, relate entirely to alimentation when disease exists. A kindred subject is alimentation in health, considered with reference to the prevention of disease, to the development and growth of the organism, and to mental and physical vigour. The latter is a subject large in extent and of vast importance. With regard to this subject, as well as to alimentation in disease, notwithstanding the knowledge acquired and the improvements made within late years, there is yet abundant scope for further information and progressive practical progress.

My remarks have had reference, almost exclusively to one aspect of the subject, namely, the danger from defective alimentation, or starvation. The evil consequences of excessive and improper alimentation, both in health and disease, enter into another aspect of the subject. Considered in the latter aspect, the subject is one of magnitude and importance. Unquestionably, the evil consequences of excessive and improper alimentation are not always sufficiently appreciated by all members of the medical profession; and, with the well-known tendency in the doctrines and practice of medicine to opposite extremes, a full apprehension of the danger of defective alimentation is doubtless liable to be followed by error in an opposite direction. Under the necessity, however, of limiting the scope of my remarks, of the two aspects of the subject I have confined myself, for the most part, to the one which, at the present time, as regards the occasion for suggestive considerations, seems to me relatively the more important.

ANATOMY AND PHYSIOLOGY.

LADENDORF ON THE ACTION OF NITRITE OF AMYL ON THE BLOOD-CORPUSCLES, AND ON THE TEMPERATURE OF THE BODY DURING INHALATION OF THIS SUBSTANCE.—No. 43 of the *Berliner Klinische Wochenschrift* commences with an article by Dr. Aug. Ladendorf, writing from the Sachsenberg Lunatic Asylum, where his observations, embracing more than forty cases, were made, partly upon sane persons, and partly on those recovering from different psychoses. The time selected was generally from 3 to 5 P.M., or after 8 P.M., thus avoiding times when a normal rise of temperature might be expected. The thermometer was placed in the mouth, between the cheek and the superior maxilla—a space almost shut off by the tongue from the nasal respiratory tract. The readings were made by the help of a lens magnifying six times, so that by using a thermometer divided into tenths it was possible to recognise, without much chance of error, $\frac{1}{100}$ th of a degree Centigrade, equal to $\frac{1}{55}$ th of a degree Fahrenheit nearly. The general result is, that the temperature always rises after the inhalation. Many circumstances affect the amount of this rise—such as the quantity of vapour inhaled,

the surrounding atmosphere, the contraction of blood-vessels, individual peculiarities, etc.; so that two persons with the same initial temperature may show differences of 0.53° Cent., equal to 0.95° Fahr. It is, however, interesting that this rise can generally be demonstrated for from one to two hours, for this explains the beneficial and continued effects of the remedy in disease. A table of thirty-six cases is given, with the temperatures observed, the differences, their maxima, and remarks. The smallest maximal elevation of temperature was 0.1° Cent., equal to 0.2° Fahr. nearly (in three cases); the highest maximal rise was 1.88° Cent., equal to 3.38° Fahr. (one case); the mean rise was 0.39° Cent., equal to 0.7° Fahr. (thirty-six cases); or, in other words, the temperature rises rather more than half a degree Fahrenheit after the inhalation of nitrite of amyl. This elevation is very evident in the course of the second minute of inhalation. The purer the preparation inhaled, the more evident the effect. The effect on the pupils was not very uniform. In all the cases when simultaneous observations were made, the axillary temperature rose correspondingly. Horatio Wood (*American Journal of the Medical Sciences*, cxxiii.) and Pick (*Ueber das Amylnitrit und seine therapeutische Anwendung*, Versuch 13) observed a fall of temperature in animals; but perhaps this resulted from the mode of experimenting. Hösternann's account of the pulse (*Wiener Med. Wochenschrift*, 1872, nos. 46, 47, 48) is confirmed by these experiments. These effects, probably, have a common cause—not mere dilatation of the vessels. Ladendorf and Dr. O. J. B. Wolff investigated the action of nitrite of amyl on blood by microscopic examination. A drop of freshly drawn blood was placed on a slide under the objective, and a little spill of wood moistened with amyl nitrite approximated. When the spill was $1\frac{1}{2}$ to 2 millimètres (equal to $\frac{1}{16}$ to $\frac{1}{13}$ of an inch nearly) distant from the blood-drop, there immediately occurred, independently of the movements in the blood-fluid, a violent agitation of the blood-corpuscles in the neighbourhood of the spill: moving rapidly away from it, and returning, rather less quickly, to their old place, in a curved line, and then madly hastening (*sic*) to begin the same game again. Simultaneous experiments with indifferent bodies gave only the ordinary physical movements. The direct contact of the amyl nitrite is said to have produced solution of corpuscles, with formation of lake-like pigment (colour of winter-cherry). The vapour first made the corpuscles pale, then dissolved them. Ladendorf did not employ a moist chamber; but he ascribes the whole of the effects of amyl nitrite to this action on the blood-corpuscles—causing a backward pressure on the pulmonary arterial system first, and then on the systemic—finally inducing venous congestion as a natural consequence. He recommends the inhalation of amyl nitrite for anæmic headaches and epileptiform attacks occurring with subnormal temperatures, especially those of the head; in one case the fits were lessened by two-thirds. He confirms Pick's observation (also made by others) as to objects appearing yellow after the inhalation; and advises the lips, nostrils, etc. to be guarded from direct contact, as vesication is apt to arise if they are not so protected.—[The Reporter thinks this experiment on the blood-corpuscles extremely interesting, but by no means conclusive. Many other volatile bodies produce similar effects under the like

circumstances; and to ascribe all the phenomena seen after inhalation of amyl nitrite to a similar action within the vessels, on the faith of one experiment crudely made, is to generalise too hastily. —*Rep.*]

W. BATHURST WOODMAN, M.D.

PALMER ON THE EFFECT OF ALCOHOL IN HEALTH.—Professor A. B. Palmer, of the University of Michigan, has an article in *The Peninsular Journal of Medicine* on the action of alcohol. He starts with the assertion of the late Dr. Anstie, that about ten drachms of absolute alcohol may be taken in a diluted form by a healthy adult in the course of twenty-four hours, without producing any noticeable disturbance of the system or any of it being capable of detection in the excretions. Dr. Anstie also thought that, if it is not oxidised in the system, of which there is no actual proof, it must undergo some unknown transformations by which a certain amount of force is set free. Professor Palmer urges as objections to these statements that Du Roy and Perrin, of Paris, have averred that all the alcohol taken into the system is eliminated unchanged; and he thinks that our methods for detecting so small a quantity are so imperfect as to render it impossible to come to a reliable conclusion upon the point. And even admitting that such a transformation occurs, it does not follow that the latent force of the alcohol is translated into vital force. Also, the increased force, did it exist, would be more than counterbalanced by the narcotic action of the drug, which must have the same tendency in small as in large doses. He thinks that such theoretical arguments are not of much use either on the one side or on the other, and that, in determining the question, we must have recourse to the observation of its effects upon the capacity for mental and bodily work. For proof of his position, he relies mainly upon the report of Professor Parkes, which appeared in the *Lancet* for August, 1874, respecting the issue of spirit-rations in the late Ashantee war. The facts, separated from opinions, are as follow. Of twenty-four total abstainers in the 42nd regiment, only four were ill during the whole campaign, and none of these more than once, while those who partook of the rations showed a much higher ratio of sick; the exact proportion being one to six of the former, and four to six of the latter. The difference was no doubt largely due to the previously more correct habits of the abstainers. In the rifle brigade the ratio of admissions to the sick-list was 770 to 1,000 strength, 574 being from fevers and 196 from other causes. Of the abstainers, the ratio was 400 to 1,000, and all from fevers. All the witnesses testify against the utility of rum when given in the morning, but several spoke of its reviving effects when given at the end of the day. This illustrates the narcotic or anodyne power of the alcohol, but gives no evidence that it imparts even temporary strength. According to Dr. Parkes, the experience of the Red River expedition 'has produced a general belief that spirits were in all cases hurtful, or, at any rate, unnecessary in military service.' In a hot, moist, enervating climate there is a desire for something to relieve the uncomfortable sensations produced by severe exertion; but Dr. Parkes regards alcohol as the 'most faithless of helps,' and as a stimulant and not a renovator of exhausted tissues. Meat-extracts, on the other hand, act in great part by supplying to the muscles the material they want. What grounds, then, have we for calling alcohol a stimulant in

the ordinary sense of that word as that which increases vital action? And, if it does not supply materials to exhausted tissues, what grounds are there for calling it a food? In summing up, Professor Palmer warns medical men against recommending its habitual use as an article of diet.

JAMES ROSS, M.D.

POUCHET ON CHANGES OF COLOURATION IN VARIOUS ANIMALS, UNDER INFLUENCE OF THE NERVES.—The French Academy has just announced its distribution of prizes for two years. The various reports on these will be found in *Comptes Rendus* (December 28.) We note, *inter alia*, that the Montyon prize, in experimental physiology, has been awarded to M. Pouchet for a memoir on the subject stated above. The following is an abstract of the Commission's report, in connection with this prize.

The memoir is in two parts, one purely anatomical, the other physiological. The former contains new facts, but it is the latter that has chiefly engaged the attention of the Commission.

From this point of view the work is almost without precedent. It was widely believed, indeed, that the skin of certain fishes took the colour of the bottom on which they lived; but exaggeration often deprived statements to this effect of their value.

In 1830 certain experiments on the subject, by Stark, were described in the *Edinburgh New Philosophical Journal*. Putting fishes in vessels enclosed in dark or in bright cloth, he perceived that the colour of the animals changed in the same direction, becoming darker or brighter; but he abstained from giving an opinion as to the internal conditions of production of this phenomenon.

It has been shown by physiologists, further, that the colour of the frog's skin may be modified from various causes, section or stimulation of the nerves, various conditions of habitat in water or air, etc.; but it was pretty generally agreed that these changes might be explained by disturbances in the circulation, due to the various modes of treatment, and bringing about in their turn a change in the state of dilatation or of contraction of the pigmentary cells. The special feature of M. Pouchet's experiments is that they show the pigmentary cells or chromoblasts to be in direct and immediate dependence on the nervous system; so that they must be added to the list of anatomical elements, in which nervous excitation is transformed into mechanical work. The nerves determine contractility of the chromoblasts, as well as that of striated fibres of voluntary muscles and fibre-cells of the muscles of vegetative life.

The author first verifies the fact that certain kinds of fish, such as young turbot, placed successively in water on bright and dark bottoms, show very rapid changes of colour, or tone, produced by dilatation or contraction of the chromoblasts charged with dark pigment, more especially those having the rôle of changing to brown, or abating more or less the proper colouration of neighbouring parts. As there are also, however, contractile cells charged with coloured pigments varying from red to yellow, it may happen that, by the state of relative contraction of these different elements, the shade of the animal may be modified in a certain measure.

If in most of the species presenting these changes it is difficult to make out the influences which cause them, there are other species in which the determining conditions may be ascertained with ease. Let a turbot, measuring only twelve to fifteen cen-

timètres, rest for some minutes over a light bottom, such as one of sand, and it becomes pale in unison with the sand; let it rest, on the other hand, over a rocky bottom, and it grows brown like that. One has only to contrast two animals placed under such conditions, to ascertain that the brightness of their colouration corresponds exactly to that presented by the colour of the two bottoms. We may thus produce indefinitely, in the same animal, a considerable change of colour, which does not require more than twenty to forty minutes for its production, and is sometimes much more rapid.

M. Pouchet calls this power which the animal has, its chromatic function. It is subject, within variable limits (according to species), to the influence of the nervous system. The colour of several species of fish was observed to change when they were irritated, or on simple sight of an external object. And since the changes depend on the greater or less absorption of light by the bottom, they must be regarded as true reflex acts, having their centre in the brain, and their starting-point in retinal impressions. The fundamental experiment in M. Pouchet's work is that in which he suppresses the chromatic function by removing the ocular globe, or simply cutting the optic nerve. The blinded animal loses its power of changing colour according to the bottom.

Having thus first established that the dilatation or contraction of the chromoblasts does not depend on local conditions produced in these elements at that point in the organism which they may occupy (as was previously thought), but is determined at a distance, by antecedent change of the elements of the central nervous system, it remained to find out by what route this transmission takes place, from the brain to the pigmentary cells of the periphery.

The author made various sections of nerves, and he has demonstrated that the spinal cord is not the nervous conductor, nor yet the lateral nerve, to which it seemed natural to attribute a rôle in this function. The trigeminus, on the other hand, has a direct action. Turbots taken from off a brown bottom, and, after section of the trigeminus, placed in a basin with sandy bottom, grow pale over their whole surface, except the face, which remains shaded, as if covered with a mask. Section of the spinal nerves gives results no less distinct. It confirms what has been said about the negative rôle of the cord. For the section of spinal nerves to influence the chromatic function, it is necessary that it be made below the point where they receive the thread of the great sympathetic. The result is a transverse dark band marking the region under the influence of mixed nerves receiving the cut sympathetic fibres.

It is, then, the great sympathetic which governs the chromatic function. It forms the route of transmission for the influence going from the brain to the cutaneous chromoblasts. The disposition of this nerve in fishes, lying as it does in the same osseous canal with the principal artery and the principal vein of the body, does not allow of the section being made with advantage directly, as grave disorders ensue, which spoil the experiment. But the result of section of the mixed nerves, as above, sufficiently attests the influence in question.

The author has not confined himself to fishes; he has shown that the chromatic function also exists in some articulata; more particularly in *Palaemon serratus*. It may be demonstrated in the way that has

been indicated for fish. Removal of the eyes, also, suppresses the function; at least till these organs are regenerated. But M. Pouchet did not succeed in finding what route the nervous influence took in crustacea, from the cerebral ganglions.

M. Pouchet's observations establish, it will be seen, a series of new facts, which have, moreover, a remarkable character of generality. They open up an unexplored region, by revealing a series of reflex actions, of which the retina is the starting-point, and which irradiate over the whole system.

These researches were prosecuted at Concarneau, in the laboratory founded by M. Coste, which has already yielded various important scientific results.

RECENT PAPERS.

- Anatomical Investigations into the Circulation of the Encephalon. By M. H. Duret. (*Archives de Physiologie*, November and December, 1874.)
- Remarks on the Effects of direct Faradisation on the Ventricles of the Heart in the Dog. (*Archives de Physiologie*, November and December, 1874.)
- Remarks on the Vaso-Dilating Action exercised on the Vessels of the Base of the Tongue by the Glosso-Pharyngeal Nerves. By M. Vulpien. (*Gazette de Médecine*, January 2, 1875.)
- The Polar Action of Electricity in Physiology. By Dr. J. J. Mason. (*New York Medical Journal*, December, 1874.)
- On the Applications of Purpurine to Histology. By M. Ranvier. (*Archives de Physiologie*, November and December, 1874.)
- On the Spectrum produced by the Striated Muscles. By M. Ranvier. (*Archives de Physiologie*, November and December, 1874.)
- On the Employment of Diluted Alcohol in Histology. By M. Ranvier. (*Archives de Physiologie*, November and December, 1874.)
- New Methods for Determining the whole Amount of the Blood. By M. Malassez. (*Archives de Physiologie*, November and December, 1874.)
- Investigations into the Condition of the System of the Sympathetic Nerves. (*Archives de Physiologie*, November and December, 1874.)
- Study of the Zygomatic Fossæ. By M. Chiais. (*Montpellier Médical*, December, 1874.)
- On the Method in which the Auriculo-Ventricular Valves of the Heart act. By M. Marc Sée. (*Archives de Physiologie*, November and December, 1874.)
- Variations of the Vertebrae and Ribs in Man. By Dr. Struthers. (*Journal of Anatomy and Physiology*, November, 1874.)
- Notes of a remarkable Case of Pharyngeal Diverticulum. By Dr. Watson. (*Journal of Anatomy and Physiology*, November, 1874.)
- On the Minute Structure of the Retina and Vitreous Humour. By Mr. J. C. Ewart. (*Journal of Anatomy and Physiology*, November, 1874.)

MEDICINE.

GLAX ON A CASE OF ENTERO-STENOSIS.—In Nos. 45 and 46 of the *Allgemeine Wiener Medizinische Zeitung* (Nov. 3 and 10, 1874) is the following case, reported by Dr. Julius Glax, from Professor Körner's wards. J. Prates, aged twenty-six, an attendant in the eye wards, stated that he had several times suffered from peritonitis, always after errors in diet, or exposure to cold. For about a year he had felt quite well, except that his bowels were often constipated. Fourteen days before admission, some imprudence in diet brought on colicky pains in his abdomen, his bowels becoming constipated at the same time. A calomel and jalap purge, which usually relieved him, did not operate; the pains increased, he lost his appetite, and was forced to seek

admission into the wards. On his admission on July 1, his condition was as follows. He was free from fever, the tongue was slightly coated, respirations twenty-four per minute. The abdomen was flat, resistant, not tender on pressure below, but above the navel on both sides of the linea alba, and especially on the right, there was a tumour discoverable, which resisted attempts to move it, and appeared very tender. The percussion-note from the xiphoid cartilage to a finger's breadth below the navel, and for about two inches in width to the right of the linea alba, was perfectly dull and hollow, and about a half-inch to the left of the middle line very tympanic and hollow. The liver dulness was continuous with the above-named in the parasternal line, otherwise normal. Except a slightly hollow sound at the right apex, the thoracic organs appeared normal. Pulse, 88, small and hard. It appeared probable that this was a collection of fecal matters in a rather uncommon situation, viz., the transverse colon. The extreme tenderness did not allow attempts to displace these scybala by pressure, especially as it was probable that there was enteritis. To promote action of the bowels the abdomen was painted with glycerine of iodine (iodi \mathfrak{O} j, potassii iodidi grs. x, glycerini \mathfrak{z} ss) and covered with thin gutta percha, so as to produce considerable cutaneous irritation. Internally, an ounce of castor-oil with fifteen drops of chloroform was given (a very useful combination, and well-borne by the stomach in cases where the castor-oil alone would be rejected, which seldom happens when thus combined with chloroform). In this case five stools quickly followed, containing a good many scybala. Next day the patient felt much better; pulse, 96; respiration, 24; temperature, 97.8°. The tumour had almost vanished. Percussion was generally clear, full and tympanic, except that to the right of the linea alba, about two finger-breadths below the edge of the liver, there was a spot of increased resistance and tenderness, and duller percussion-note. Five leeches over this gave some relief. On July 4 there was again considerable dulness below the liver, and less tenderness. A clyster produced a copious feculent stool. On the 5th there was more dulness. Iodine-paint was again applied, and the castor-oil with chloroform was ordered again; three stools with hard lumps resulted. On July 6 the patient felt pretty well; pulse 80, respiration 24, temperature 98.3° Fahr. On the 7th, although percussion was normal, the patient felt violent pains on the right side, below the liver. The temperature rose to 100.4°, the pulse again to 96. Five leeches again relieved. About 2 A.M. on July 8, the patient was found in great pain, and crying out loudly; the abdomen was much distended; the percussion-note was everywhere clear and full, not tympanic. He had hiccup, and vomited bile-tinged fluid. Pulse 96, small and weak; temperature 99.8°. Invagination was suspected, and a general warm bath ordered, with repetition of castor-oil and chloroform. This was immediately vomited, and the pains remained unabated; next day there was no improvement. There was vomiting of matters with fecal smell; all medicines, even chloroform, given by the mouth, were vomited, and enemata appeared unsuccessful. He was ordered to suck ice, and to have an aromatic poultice over the abdomen. Towards evening one-sixth of a grain of morphia, injected subcutaneously, relieved him. Abdominal collapse set in during the next two days,

and he died, perfectly conscious, without much pain, at 6.30 A.M., July 12.

At the *post mortem* examination, close to the sixth and seventh ribs on the right of the sternum, there was a small collection of pus in the subcutaneous areolar tissue, and a probe passed some distance all round with ease. There was slight effusion in the arachnoid spaces and lateral ventricles of the brain, their ependymata were somewhat turbid; in the fourth ventricle the lining was finely granular, and pale. Both right and left lungs were firmly adherent to the chest-wall. There were two cheesy masses, of the size of beans, at the apex of the right lung. There was turbid fluid in the peritoneal cavity. The upper part of the small intestine was much distended, covered with flakes of lymph; these and vegetations (granulations) were also found on the peritoneum, along with fibres and general thickening. The intestines were attached to the posterior wall by easily broken down adhesions. The distended coil (of the upper portion) of the small intestine lay at the lower part of the abdomen, partly in the pelvis; below this were three or four coils of the lower end of the ileum, which were adherent to it by its thickened, shortened, and wrinkled mesentery near the vertebral border of the latter, so that the bowel appeared much twisted in three or four places. These portions of the intestine were very thin, collapsed, softened, almost empty; and, as far as could be made out, quite pervious. The rest of the bowel, besides gas, contained thin fluid bile-tinged fecal masses, of which the upper portion of the small intestine contained more than the colon, the mucous membrane of which in many spots was dark red, and these spots showed slight loss of substance in the middle. The transverse colon and duodenum were adherent to each other very firmly at one spot, and here there was a small collection of pus. The liver, spleen and kidneys were anæmic; the former had firm adhesions; it was otherwise healthy. The thoracic vertebræ were denuded anteriorly as to their ligaments, and between them was a tolerable quantity of partly cheesy, partly purulent matter. The vertebræ themselves were small, very rough, and eroded in spots. The diagnosis was twisting of the bowel from shrinking of the mesentery, tubercular caries of the thoracic vertebræ, and pulmonary tuberculosis.

The first opinion formed of the case, that the tumour was fecal, was correct, for it vanished after a laxative. The constipation on previous occasions was probably due to previous peritonitis. The later symptoms were partly due to paralysis of a portion of the intestine. The lower part of the ileum was bent in an angular fashion in three or four spots, and here it was thin-walled and soft. The conditions for paralysis were present in the entero-peritonitis, for, according to Mayer (*Medizinische Jahrbücher*, Wien 1871, Heft ii.) and Basch (a recent communication from whom will be found in the *Wiener Med. Jahrbücher*, 1874 i.) the intestinal movements are phenomena dependent altogether upon the blood-pressure in the coats of the intestines. The vertebral column was not opened, but there were no symptoms of disease of the spinal cord during life. [The reporter thinks it possible that both the former and the latter fatal peritonitis were brought about by the actual escape of purulent and septic matters into the peritoneal cavity, of which many instances are known—then the paralysis and constipation occur as a conservative process. Useful as the castor-oil and chloroform

may be as a laxative, he cannot but think it better practice to abstain from all purgatives, when there are both pain and tenderness on pressure in abdominal attacks.—*Rep.*]

SCHMITZ ON THE ETIOLOGY OF DIABETES MELLITUS.—Dr. Richard Schmitz, of Neuenahr, writes as follows, in no. 44 of the *Berliner Klinische Wochenschrift*. He has observed and treated 104 diabetics since 1868, of which 77 were males and 27 females. The ages were as follows:—1 girl aged four years; 8 cases from ten to twenty years (including a boy aged eleven and a-half; 1 male, 1 female, aged fifteen; 2 males aged sixteen; 2 males aged seventeen; 1 female aged nineteen); 9 cases from twenty to thirty years; 16 from thirty to forty years; 16 from forty to fifty years; 38 from fifty to sixty years; 12 from sixty to seventy years; 4 cases from seventy to eighty. In 45 of these the immediate cause of the diabetes must be admitted to be some disorder of the nervous system. Of these there were many varieties; in 15, anxiety and great sorrow; in 8, intense pain, mostly due to accidents; in 7, severe affections of the nerve-centres; in 7 more there was incessant mental activity; in 3 there was great shock from fright; 3 others had practised onanism for a long time, and 2 had great nervous excitement in consequence of prurigo pudendorum. In 20 persons the diabetes might be ascribed to immoderate use of sugar; in 7, extreme debility resulting from severe illness seemed the cause; three times, severe cardiac mischief, twice bad forms of syphilis, and twice amyloid disease of the liver and kidneys were present. In the remaining 32 there was no obvious cause for the diabetes. There was albuminuria in 12 out of the 104 cases. Many of these immediate causes of diabetes, such as grief, anxiety, etc., are met with in hundreds of men, but how few of these have diabetes? One is therefore almost tempted to believe in a diabetic diathesis, or a proclivity to diabetes (disposition). This is probably inherited in many cases. Out of these 104 twenty-two showed this heredity in a marked manner. In one, the grandfather, in one, both grandfather and father; in six the father, in six mother and sister, and in eight the sisters, were diabetics. Had doubtful statements, such as 'I believe,' 'I think,' etc., been taken, the numbers would have been very much larger. Considering how few are 'posted' in family histories, and how many cases of diabetes, as Seegen says, are never diagnosed at all, we may conclude that in most cases this disease is congenital and inherited. Recognition of this proclivity may be useful to our patients.* That this diabetic diathesis, when inherited, still needs some definite proximate cause is shown by several cases. Mr. F., aged fifty-seven, lost his father from diabetes; his mother and all his sisters continued healthy. In early life he was healthy, married young, and lived steadily. Of his five children he only lost one daughter, who took her life in an attack of melancholia. The other children were healthy. This daughter's death quite shattered his health; he had jaundice, and catarrh of stomach and intestines. When these subsided he continued to lose flesh;

lost all inclination for work; thirst and polyuria set in, and four weeks after his daughter's death, his urine contained 5 per cent. of sugar. His son, aged twenty-six, was quite healthy till the year of his father's attack, when he sustained a compound fracture of the left leg, attended with much pain, by falling from his horse. Fourteen days afterwards, in addition to other symptoms, he passed urine containing 6 per cent. of sugar. These two cases are remarkable, for although one inherited the proclivity from his father, the other from father and grandfather, yet one lived fifty-seven years, the other twenty-six years, without any symptoms. The melancholia and suicide of the daughter is interesting as illustrating the relations of mental disease to diabetes. Mrs. L., aged fifty-three, has four children, all delicate. Her mother and two sisters died of diabetes mellitus, and a sister and brother suffer from it at the present time. She continued free from diabetes till her fiftieth year, when she could not sleep from prurigo of the genitals. The percentage of sugar varied from 0.2 to nearly 4 per cent. In another case, aged twenty-eight, the mother's sister, sister and niece of the patient, died from diabetes. One brother also suffers from it. [The details of these cases leave little doubt that they really were what we call diabetes mellitus. In many polyuria is expressly mentioned. It is, however, singular that the daily quantities given for the urine are by no means very excessive; being in the cases quoted fifty-six ounces, seventy-two ounces, sixty-two ounces respectively; only the last amounting to 118 ounces *per diem*. There is probably some mistake in these numbers.—*Rep.*]

OEHME ON A CASE OF INTERMITTENT CHYLURIA.—Dr. Oehme relates the case in the *Deutsches Archiv für klinische Medicin*, Band xiv. The driver of a hackney-coach, aged fifty, who suffered (as was learnt from the necropsy) from cancer of the pylorus, exhibited, besides the symptoms due to his gastric affection, the striking peculiarity that from midnight to 5 or 6 A.M., he passed an extremely white milky urine, which was in fact chyle, containing, as it did, fat and albuminous matters. This peculiarity was some time in establishing itself; at first he often passed some days without other than normal urine. The patient himself first observed this character of his nocturnal secretion at the close of the year 1872, and in consequence of extreme anorexia it ceased seven weeks before his death in August, 1874. This case is remarkable on two grounds; first, that the affection was intermittent, which has never before been described; and secondly, its subject had never been in the tropics, even for a day, which has heretofore been considered an essential element in the history of such cases.

[In Dr. Tanner's *Practice of Medicine*, 5th edit., p. 604, reference is made to some cases of chylous urine of an intermitting character, and the reporter knows of cases in which the sufferers have never been in the tropics. The disease is, however, rare in our latitudes, many cases supposed to be examples of it being instances of white lithates, with deficiency of pigment or accidental admixtures.—*Rep.*]

W. BATHURST WOODMAN, M.D.

* Thus forewarned, we may caution against too free use of sugar, too great mental activity; warn them of the dangers likely to result from injuries to the head, etc.; and if accidents have occurred, or mistakes been made, if we know this proclivity, we should at once test the urine for sugar, and then begin treatment early.

JUNKIN ON A CASE OF TRANSFUSION.—In the *Transactions of the Pennsylvania Medical Society* for 1874, Dr. J. M. Junkin reports a case in which, some years ago, he saved the life of a patient by transfusion. He says: 'I was called, about ten o'clock

at night, to see Mrs. F., and found her flooding fearfully from an abortion, at about six weeks. She was very much prostrated from loss of blood, so that the pulse could scarcely be felt at the wrist. I immediately checked the blood by a tampon of soft rags, and took all the pillows from under the head; still the prostration increased. I gave stimulants; she still continued to sink; I then raised the foot of the bed, so as to keep what blood she had in the brain, as much as possible. I continued increasing the elevation, until she had to be held, to keep from pressing against the head-board; still the pulse became more feeble, so that it could scarcely be felt at the carotid artery.

'I said there was no chance of saving her life except by giving her more blood from another person. The husband at once offered his arm; but it being far in the country, there was no possibility of getting any instruments, nor was there any time to spare, even if there had been any within reach to send for. I asked if there was a syringe in the house; one was brought, glass, female, with curved neck and a bulb on the end of it; I said it would not do; but immediately thought glass would melt, so I ran to a fire, thrust the end among the coals until it was softened, drew it out into a slender tube, broke the end off to a proper size, put it in the fire to smooth the end, then back to the patient, tied up the husband's arm and drew several ounces of blood—told him to put his finger on the orifice—filled the syringe, opened a vein in the arm of the patient, and forced as much blood as possible into the vein. Probably not more than two ounces passed; but I did not find it necessary to repeat the operation; the husband's blood was of a much richer quality, so that in a few minutes the patient began to rally, the pulse gradually coming up. By daylight I was able, by lowering a little at a time, to get the bed on a level, and in the course of a few hours to place a small pillow under the head.

'The recovery was rapid and complete. A little more than a year afterwards, I delivered the lady of a large healthy child.'

NUTT ON SPURIOUS HYDROPHOBIA.—Dr. Nutt records (*Pennsylvania Med. Soc. Report*, vol. x. 1874) an interesting case of spurious hydrophobia, confirmed by necropsy. A man, named Harry Smith, labourer, aged about thirty-five, dark complexioned, light figure, height five feet six inches, weight 125 lbs.; generally quite cheerful, but with occasional fits of depression and uncalled-for anger, while living in Elizabeth, New Jersey, was bitten by his dog in 1873. The dog was killed; and the dread of hydrophobia, with pecuniary embarrassment, excited a train of nervous symptoms that culminated in an attack of acute mania which proved fatal in forty-eight hours. On February 13 he complained of pain in his head, with pain in his hand where the indistinct outline of a scar was visible. He was wakeful, and, unfortunately, filled with terror of his impending madness; recalled the reports he had read of hydrophobia; imagined he could not drink water, and would rush back at the sight of it. But with a full dose of morphia hypodermically, he quieted down, had a comfortable sleep, but with trouble bearing heavily on him. He was rational when spoken to, but at other times wandered. He drank water with ease on the second day, and had an intense sensation of heat, which was relieved by exposure to the cold air. He died very suddenly and quietly, but his death was preceded by terrible nervous convul-

sions, which fully satisfied his attendants that it was a true case of hydrophobia. Twenty-four hours after death a necropsy was held, with the assistance of Drs. Crawford, Thomas and Edward Lyon, McVicker, and Nutt. The abdominal and thoracic viscera were normal, with some slight adhesions. The cause of death was chronic inflammation of the meninges of the brain, probably induced by a sun-stroke, two years before, while exposed in a brick-yard to the direct rays of the sun. Under ordinary circumstances, he would probably have lived an excitable life, but, with the terrible terror of hydrophobia pending, the first slight evidence of any trifling disease was confirmation doubly sure, and developed this form of mania.

HAND ON DIVISION OF THE VAGUS IN CHOLERA. Dr. H. C. Hand (*Transactions of Minnesota Medical Society*, 1874) treats of the abdominal branches of the pneumogastric nerves, and their relations to the treatment of choleraic discharges. From the quoted cases of other observers, and from his own experiments, he believes that pressure, or cold, applied over the vagi in the neck, may prove to exercise a controlling influence over Asiatic cholera, and over other abdominal troubles. Moreover, he makes the point that in desperate cases division of the nerve on one side would be good treatment—the left when emesis is the graver symptom, and the right when catharsis threatens life.

RECENT PAPERS.

- Encephalic Hæmorrhage. By Dr. Parrot. (*Archives de Tocologie*, January, 1875.)
 Two fatal Cases of Chorea. (*Gazette des Hôpitaux*, December 29, 1874, *et seq.*)
 Clinical Ureometry. By Dr. H. G. Piffard. (*New York Medical Journal*, December, 1874.)
 Calomel in Pneumonia. By Dr. Morgan. (*New York Medical Journal*, December, 1874.)
 Two Cases of Cinesalgia following on Muscular Diseases, cured by Continuous Currents. (*Gazette Médicale de Strasbourg*, January 1, 1875.)
 On the Treatment of Bronchocele. By Dr. Morell Mackenzie. (*Birmingham Medical Review*, January, 1875.)
 On Cold Injections: their Physiological Action and Therapeutic Use in Typhoid Fever. By M. Foltz. (*Lyon Médical*, January 3, 1875.)
 On Obstitution of the Bowels, from impacted Fæces in the Cæcum. By Dr. Hurd. (*The Clinic*, December 19.)
 Remarks on the Systemic Indications of Chronic Bright's Disease. By Dr. J. M. Fothergill. (*British Medical Journal*, January 9.)
 The Treatment of Acute Rheumatism. By Dr. Dowse. (*British Medical Journal*, January 9.)
 On Diphtheria. By Mr. T. Prangley. (*British Medical Journal*, January 9.)

SURGERY.

GAY ON INJURIES OF THE SKULL.*—This is an article extracted from some recent American journal, the name of which is not stated; its main object is to enforce the conclusion that a blow on the head which does not fracture the skull may be considered as dangerous, or even more dangerous, than another blow which does fracture the bones. [This opinion was given in answer to a question of similar purport put to the author in a court of justice.] The speculative probability of

* *Injuries of the Skull; their Relation to Medical Evidence, with Reports of Cases and Remarks upon the Employment of the Trephine.* By C. C. F. Gay, M.D., Surgeon to the Buffalo General Hospital. 1874.

this opinion is considerable; for, if the bone be not fractured, the force may be transmitted through it to the brain below, which otherwise would be expended and brought to an equilibrium in the act of causing the fracture. But the practical importance of this doctrine does not really seem very great. No competent surgeon doubts that in head-injuries the chief danger lies, not in the injury to the bones, but in the possible lesion of the brain, and that such lesion is often found without fracture; but as a general rule we believe that blows severe enough to cause fatal mischief to the brain do fracture the skull, so that the defence which the fracture of the skull offers to the brain is certainly imperfect, and it must not be forgotten that the depression of the fracture or injury to the large vessels by fractured edges are causes of danger connected with the fracture itself. Besides, there are many other considerations which modify the prognosis, such as the age and general health of the patient, the nature of the accident, etc., and it is very difficult to estimate the force of the blow, which, it must be remembered, must be assumed to be equal in the two classes of cases compared together. For these reasons we cannot say that we attach much importance to the question treated of by Dr. Gay, considered as a medico-legal problem. Nay, we should have been ourselves disposed to give a different (though not an opposite) reply to the question stated above, viz., that a heavy blow on the head is more dangerous than a lighter one—that a heavy blow usually fractures the skull, and as, in fact, the skull, under ordinary circumstances, does not yield except to a heavy blow, it is on this account that blows on the head which cause fracture are generally more dangerous than such as do not; but that the injury to the bone is *per se* of much less importance than that to the brain (indeed is only of importance as being a possible cause of injury to the brain or its membranes), and that such injuries may be, and often are, caused by blows which do not fracture the skull. That this view of the case, though less simple for a layman, is more correct in a medical point of view than that maintained in Dr. Gay's article, seems to us to follow from the following words of the author himself.

'Any one who will, may demonstrate upon the cadaver the immense power necessary to be brought into requisition, adequate to a fracture of the cranial bones. Whosoever, I think, makes the trial, will be convinced that the impact of a force that fractures the bones of the skull must almost of necessity so confuse the brain-substance or inflict injury upon the investing membranes, or cause extravasation and blood-clot with or without fracture, as to produce, with the attendant shock, inevitable death.'

Nor does Dr. Gay make any attempt to support his conclusions by other than speculative arguments, borrowed mainly from Mr. Erichsen—and in part from another author whom he confounds with the present writer—but who is probably Mr. Prescott Hewett (in *Holmes's System of Surgery*). The cases which he recites in no way bear on the main conclusions of the paper—nor even much on the secondary one whether the trephine should not be used somewhat more freely than it now commonly is—whether it may not be justifiable in some cases to trephine in simple depressed fracture without symptoms, or even occasionally to cut down through the unbroken scalp for purposes of diagnosis. One

case indeed is given (Case 6) in which a supposed depression of the skull was found, on cutting down on it, to be imaginary, due we presume to extravasation; but it has little bearing on the surgery of head-injuries, since the patient died from other causes.

On the whole, though personally inclined to agree with Dr. Gay to a great extent on both the subjects of his paper, we cannot say that he has done much to prove either.

T. HOLMES.

BEDOIN ON URETHRITIS.—Dr. Bedoin, chief surgeon in the military hospital of Versailles, employs both liquid and solid injections against urethritis. The formula of the liquid injection is as follows:—Crystallised sulphate of zinc, crystallised subacetate of lead, of each 20 centigrammes; distilled water, 100,00 grammes. The bottle to be shaken whenever the injection is used. According to the *Annales de la Société Médico-Chirurgicale de Lille*, October, 1874, as soon as the inflammatory period is passed, Dr. Bedoin gives his patients four or five injections daily. In proportion as the discharge diminished, he reduced the injections first to three, then to two, then to one, and proceeded in the same way until there was not the slightest urethral discharge. Towards the conclusion of the disease he gave the patients a little wine, and gradually augmented the quantity until the urethritis was completely cured. The solid injections were administered according to Dr. Paillasson's formula; they consisted of simple glycerole of starch, or with a hundredth part of sulphate of zinc added to it. To insert these solid injections into the urethral canal, Dr. Paillasson uses a cylindrical or flexible tube, like those in which painters keep their colours, previously filled with glycerole of starch. A small cannula is screwed to one end, and gradual pressure, exercised at the other by means of a small key round which the tube is rolled, forces the injection into the urethra. The tube is graduated into equal divisions, which serve to indicate the average dose of the drug to be injected into the canal. Both chemically and physically the glycerole generally used by M. Paillasson is extremely well adapted to remain in the urethra, and the operation is absolutely painless in the immense majority of cases. These methods of treatment have been tried for six weeks on seventy-two patients, the minimum duration of the treatment having been from ten to fifteen days.

The results obtained were fifteen failures, of which eleven were treated by liquid injections, and two by Dr. Paillasson's solid injections. The cures amounted to fifty-nine, of which forty-five, one case of acute, and eight of chronic urethritis, were healed by liquid injections, and six were treated by Dr. Paillasson's solid injections.

TURNIPSEED ON REMOVAL OF A KNIFE-BLADE FROM THE HEAD.—Dr. E. B. Turnipseed (*Transactions of the South Carolina Medical Society*) gives an account of the removal of a knife-blade from the head of a negro man, after remaining for three years imbedded in the anterior left lobe of the brain. He had been stabbed in a quarrel, but had no certain proof that the blade was left in the wound. Epileptic convulsions soon appeared, and continued with great though variable frequency. His condition was so very bad, that Dr. Turnipseed resolved to expose the slight bony swelling which marked the wound, and, if nothing were found, then to trephine. The blade was discovered very readily and removed.

No further interference was judged to be advisable. The piece of steel was one and a quarter inches long, one inch having been in contact with the brain. Convulsions have since occurred, but with diminished frequency.

RECENT PAPERS.

- Complete Lateral Luxation of the Elbow outwards. By Dr. Hatry. (*Lyon Medical*, January 3, 1875.)
 Case of Deep Lipoma of the Arm adhering to the Internal Surface of the Humerus. By Dr. Auger. (*Gazette Médicale de Paris*, January 2.)
 Ununited Fracture of the Fore-Arm, with Deficiency of the Ulna, treated successfully by Tension and the Wire Suture. By Mr. T. Annandale. (*British Medical Journal*, January 9.)
 On Direct Transfusion of Lamb's Blood to Man. By Dr. Hasse and Dr. Gesellius. (*Gazette Médicale de Strasbourg*, January 1, 1875.)
 Antiseptic Incisions an Aid to Surgical Diagnosis. By Thomas Annandale, F.R.S.E. (*Edinburgh Medical Journal*, January, 1875.)
 Excision of the Hip-Joint in Chronic Arthritis or Hip-Disease. By Dr. Hodge. (*Philadelphia Medical Times*, December 19, 1874.)
 Impressions of German Surgery. By Mr. J. F. West. (*The Birmingham Medical Review*, January, 1875.)

MATERIA MEDICA AND THERAPEUTICS.

CERASI ON THE THERAPEUTIC USES OF PROPYLAMINE AND ITS SALTS IN VARIOUS DISEASES. Dr. Philippo Cerasi, in a work recently published by him, affirms that this drug is not poisonous when it is given in suitable doses (from nine to forty-five grains *per diem*.) He fortifies his opinions by the experiments of M. Raynal and Dr. Dujardin-Beaumetz, and adds that in his practice he has always found a difference of action between the chlorhydrate of trimethylamine and the chlorhydrate of amylamine. The former rather possesses a sedative action on the nervous system, and the second diminishes the temperature more rapidly by regulating the circulation. He also observes that all the salts of propylamine have a more or less rapid and marked action on the nervous and cardio-vascular system. He has successfully employed propylamine and its derivatives in fourteen cases of acute rheumatism. In three cases the patients showed well marked cardiac symptoms, intense dyspnoea, very painful precordial pain, and small pulse; all these morbid phenomena gave way rapidly to the action of the drug. Dr. Cerasi mentions that in one case where the pains in the joints persisted, he used propylamine as an external application with much success. He had the painful joints rubbed with a liniment composed of one part of propylamine in three parts of glycerine, over which a layer of wadding was laid. This is a fact of some importance.

Dr. Cerasi having made up his mind from these experiments that this drug has a salutary action on rheumatism, by the depressant power it exercises on the cardiac activity and arterial dilatation, and by its narcotic powers, in order to determine if these therapeutic qualities were really present, has tried analogous experiments in other diseases, and he has begun to use it in affections in which it is necessary to moderate and regulate the circulation of the blood. He prescribed chlorhydrate of trimethylamine for four patients suffering from imperfect cardiac innervation, and it succeeded in

calming the heart's action with sufficient quickness. He also had reason to be satisfied with its use in two cases of hypertrophy, and one of cardiac dilatation. In a case of acute pericarditis, this drug diminished the pain and lessened the force of the pulsations; whilst in two cases of catarrhic pneumonia, and in one of amygdalitis accompanied by fever, propylamine had advantageous effects. Dr. Cerasi thinks that if ulterior observations, taken on a large scale, should serve to confirm the fact that this agent, which moderates the excess of caloric, can arrest the morbid processes in which profound organic oxidation is the great cause of the regressive organic metamorphoses, the practitioner would possess a precious means of gaining time and combating disease with greater certainty.

Pursuing his researches, Dr. Cerasi made experiments with propylamine, administered in cases of infectious disease. In two cases of typhoid fever, and in one case of typhus, he found the temperature lowered by the use of this medicine. In two cases of pyæmia, the propylamine lowered the temperature progressively; but in one of them the temperature, having fallen to 37°, suddenly rose to 40°, and the patient died. He obtained a notable lowering of the temperature in two cases of scarlatina, and in one of malignant small-pox during the suppurative stage. He made use of it in a case of acute alcoholism, accompanied by a very high temperature, which is a serious symptom; the first day it was 38.2° Cent. (100.76° Fahr.), the second 39.5° Cent. (102° Fahr.), the third day over 40° Cent. (104° Fahr.). It was then that chlorhydrate of amylamine was administered, and at the end of two days the temperature had fallen two degrees. The same plan of treatment was persevered in, and on the fifth day the temperature fell to 38°, and on the ninth day it was at 37.2°.

From these results, Dr. Cerasi concludes that propylamine and its derivatives exercise a depressing action on the cardio-vascular circulation, and that this action appeared to him to reside in a certain elective action on the heart and the tonicity of the arterial vessels. It also diminishes the excess of heat produced by certain morbid processes, especially in those caused by the presence of ferments. It brings the peripheric circulation into harmony with the central circulation, especially when the defective distribution of the blood is caused by disturbed innervation. Dr. Cerasi winds up by requesting medical practitioners to verify whether propylamine possesses the properties which he attributes to it.

WAGGONER ON THE USE OF ALKALIES.—Dr. Waggoner (*Transactions of the Medical Society of the State of Pennsylvania*, no. 10, 1874) writes: 'Since I entered the practice of medicine, twenty-five years ago, I have had trouble with the iodides. Many stomachs will not tolerate them; and, moreover, my patients were complaining of enteric flatulence, and the bad smell of all the emanations from the body. I speak, also, from personal experience. As a substitute, I have been using the alkaline carbonates and bicarbonates, with good success, and more satisfaction to my patients. Those who were troubled with glandular enlargements and indolent ulcers, and whom I had treated with iodide of potassium as the *sine qua non*, are now relieved quite as promptly by bicarbonate and carbonate of potassa and soda. I think we made a mistake when we accredited the

cure to the iodine instead of the alkali. I give this as the result of observation and experience, and also because it was Professor Nathaniel Chapman's favourite remedy. He used salt of tartar or carbonate of potassa.⁷

BLAND ON THE TREATMENT OF SCARLATINA BY HYPOSULPHITES AND CARBOLIC ACID.—Dr. Bland says (*Transactions of the Medical Society of the State of Pennsylvania*): 'In the treatment of scarlatina anginosa, I must again renew my indorsement of the internal administration of the hyposulphites and carbolic acid. The results obtained in this disease with the above remedies are unprecedented, and give every evidence to warrant their continued use. I recently treated seven cases in one family, four of whom had severe throat-ulcerations. The topical application of carbolic acid and glycerin to the inside of the throat, the hyposulphite of soda internally with good nutritious diet and febrifuge mixture as required, was the treatment employed, and in eight days the patients were all well. A number of my colleagues have tried the foregoing remedies, and give them their unqualified endorsement.'

OBSTETRICS AND GYNÆCOLOGY.

PANAS ON THE ULTIMATE RESULTS OF OVARIOTOMY.—M. Panas (*La France Médicale*) in a paper read before the Société de Chirurgie, on June 3, 1874, says that up to the present time only one thing has been taken into account, whether the patient can be operated on or not; or rather, is an operation feasible? M. Panas says that an ovarian cyst may be removed by operation, but in some cases the surgeon ought not to operate because of the nature of the tumour. Tumours appearing simply cystic may return in a year or two after the operation.

For example, a woman operated on at St. Louis, in 1871, had an ovarian cyst and subperitoneal fibroid removed. The cure was rapid. The following year the patient re-entered the hospital in a deplorable state; the glands of the groin, breasts, and clavicular regions being invaded by cancer. And yet the tumour removed appeared to be an ordinary cyst, with nothing cancerous about it.

Last year M. Panas tapped a woman having several cysts of the ovary, and drew off eighteen litres of fluid. The tumour had grown in eight months. Vaginal examination revealed a cancrroid of the cervix. The patient is now dying with cancerous cachexia.

There are, then, cysts of slow growth and cysts which grow rapidly; these last he regards as malignant, and likely to return after ovariectomy.

[This may be all very true, but Mr. Spencer Wells's extensive statistics of all sorts of cases show recurrence to be rare; and even if it may happen, and the tumour can be removed, surely the operation is as justifiable as the removal of any malignant growth. In the case quoted above, the affection of the cervix by no means proves that the ovarian tumour was a malignant one also.—*Rep.*]

MACDONALD ON OCCIPITO-POSTERIOR POSITIONS OF THE HEAD.—Dr. Angus Macdonald (*The Edinburgh Medical Journal*, October, 1874) as the result of an analysis of twenty-six operative cases, has arrived at the following conclusions.

1. In occipito-posterior positions, if these be persistent, we may safely assume that we have some pelvic peculiarity or disproportionately large head to deal with, and, as a general rule, all attempts at artificial rectification of the position of the head will prove abortive, and are even dangerous if attempted to be effected by means of levers, forceps, etc.

2. The only exception is when temporary delay is occasioned from accidental displacement of a small head; in which case one has the alternative of waiting till the normal powers of parturition effect delivery, or of facilitating that event by timely rectification of the head by the hand.

3. In cases which threaten to end as 'face to pubes,' and are at the same time decidedly difficult, it is best to pull the head through cautiously, and to abstain from every attempt at rectification of the head,—special care being taken to guard the perinæum, as the occiput, when passing over it, greatly distends it.

4. In cases of obstructed occipito-posterior positions, in which the rotation takes place at the outlet of the bony pelvis, while the head is in the grasp of the curved forceps, there is very great danger in the case of primiparæ of the forceps lacerating the soft parts, on account of the oblique position into which they are thrown.

5. To prevent this accident, either—(i.) the blades ought to be cautiously removed, the head fixed in position, and the uterus allowed to finish the expulsion of the head; or, (ii.) the curved instruments may be reapplied, adjusted to the altered relation of parts; or (iii.) a straight short pair may be applied, and the further advance of the head thereby secured.

AUGER ON DERMOID CYST OF THE BROAD LIGAMENT: GASTROTOMY AND CURE.—A girl aged eighteen, a virgin, entered in February, 1871, the Hospital Saint-Antoine. She had suffered for two months violent pains in the flanks and loins with obstinate constipation. There was no menstrual disorder. The abdomen was very painful, and there was dysuria. M. Leroy diagnosed an abdominal tumour, which he aspirated, and drew off a quantity of thick, fatty, yellow matter, in which the microscope showed epithelial cells, like those found in the sebaceous glands.

The os could not be reached by vaginal examination, but there was a hard tumour filling up both the back and front parts of the pelvis, with a fold in the vaginal mucous membrane between the bladder and rectum, both being pressed upon. The tumour reached to the umbilicus. She suffered so much that an immediate operation was desired, and M. Auger operated and removed a dermoid cyst from between the folds of the broad ligament. It was very closely adherent to the body of the uterus, but had no proper pedicle. The Fallopian tube passed over the upper part of the tumour. The ovary was not seen. The tumour was on the right side.

[This is an interesting case, as the tumour corresponded in all its anatomical relations with the extra-ovarian cysts, which are affirmed by some to be always unilocular, and derived from the organ of Rosenmüller. Here, on the contrary, there was a cyst evidently of ovarian origin, growing between the folds of the broad ligament, and with the tube stretching over it. The case would be more interesting if the ovary, or any remains of it, had been seen. Was the tumour the result of an ovum

escaped between the layers of the broad ligament, or of a Graafian follicle in the same situation? If not, whence its dermoid nature?—*Rep.*

J. KNOWSLEY THORNTON.

VON GRUNEWALDT ON STERILITY ATTENDING DISEASE OF THE SEXUAL ORGANS.—At the Congress of German Naturalists and Medical Men, held in 1874 at Breslau, in the gynecological section (*Berliner Klinische Wochenschrift*, November 23, 1874), Dr. Von Grunewaldt, of St. Petersburg, discoursed on the sterility of women, with diseased sexual organs. He found that out of 824 sick women of the age and under circumstances favourable for impregnation, 432, or more than fifty per cent., were sterile. He came to the following conclusions. 1. Sterility of women is a disturbance of the normal function of the sexual apparatus. 2. Conception forms only one link in the course of events by which the female provides for the propagation of the species. 3. A complete mechanical impediment to conception of the woman arises only in consequence of atresia in the course of the genital tract. 4. The point of difficulty in propagative activity in the woman, as far as the uterus is concerned, rests on the capability of the impregnated ovum for germination (*Bebrütung*.) 5. This capability depends exclusively on a certain degree of integrity of the consequent tissue of the uterus. 6. The part which ovulation plays in the process of propagation can be defined clinically, only rarely, or not at all.

LEOPOLD ON THE UTERINE LYMPHATICS.—Dr. Leopold of Leipsic (*ibid.*) made a communication on the lymphatics of the gravid uterus and of the secundines. He found that the uterine mucous membrane exhibits a vast lacunar and cavernous system of lymphatic spaces; the latter surround the blood-vessels and uterine glands, and are to be viewed as the beginnings of the lymph-tracts of the whole uterus; they pass through from the mucous membrane to the cellular tissue covering the uterus (*Parametrien*) and here, as large valved spaces, enter the pelvic lymphatic glands. The mucous membrane of the pregnant uterus displays the same lymph-spaces, but in greater number and of a greater calibre. The effect of this is that, when after an abortion or labour the placenta is thrown off, the small remainder of the mucous membrane of the puerperal uterus consists of thousands of patulous lymph-spaces. This explains the possibility of very rapid absorption of septic materials conveyed into the vagina or uterus. Not only is the maternal placenta, but also the membranes, are permeated with lymph-spaces, particularly the amnion, which is constituted like peritoneum, and whose inner surface may be represented as a lymph-sac.

SCHATZ ON THE LIQUOR AMNII.—Professor Schatz, of Rostock (*ibid.*) spoke on the question of the source of the liquor amnii. He found that a large part, if not the larger portion, of the amniotic fluid was yielded by the kidneys and the skin. The chemical constitution of the fluid proved this. Its interchange, viz., its constant reabsorption and its reappearance in urine and sweat, seemed to proceed very actively. The consistence of the meconium admitted of the conclusion that the foetus, during the last months of gestation, partially swallowed its liquor amnii. This the author proved by an observation made in a case of twins.

LANDAU ON THE ORIGIN OF URINARY FISTULÆ IN WOMEN.—Landau of Breslau (*ibid.*) spoke on the genesis of urinary fistulæ in women. He blamed the forceps as the chief cause of fistulæ situated in the lower portion of the vagina and of complicated ones, not so much by the production of sloughing by their blades, as by pressing the back of the head against the anterior pelvic walls and increasing friction. For the formation of fistulæ situated higher up, the pressure of parturition alone sufficed as the direct cause.

FRÄNKEL ON THE TREATMENT OF SPASM OF THE UTERUS.—Dr. Fränkel of Breslau (*ibid.*) related a new method of treatment of spasm of the uterus during expulsion of the child and placenta. When the uterus has become completely or partially spasmodically contracted on the foetus, or on a separated placenta, which in the former case is frequently the result of the liquor amnii draining away in cross-births, and preventing the passage of the hand to turn the child, he proposes to overcome the spasm by injecting hypodermically a solution of sulphate of atropine (0.001 gramme = $\frac{3}{100}$ grain) and of muriate of morphia (0.015 gramme = about $\frac{1}{4}$ grain), with inhalation of chloroform about five minutes later. There is no fear of *post partum hæmorrhage*; the uterus relaxes speedily and yieldingly.

W. C. GRIGG, M.D.

NEW INVENTIONS.

SOLID THIRST-QUENCHERS, OR EFFERVESCING LOZENGES.

At the annual *conversazione* of the Harveian Society, we had an opportunity of examining these medicinal novelties. They are, no doubt, what they profess to be, 'Thirst-quenchers,' for, immediately they are placed on the tongue they begin to effervesce, stimulating the buccal and salivary glands, thus relieving the desire for drink. They are as agreeable to taste as they are elegant in form; and we can readily understand that they have in a high degree the power of allaying sickness and fever. To the frequenters of theatres, concerts, and places of amusement, they afford a ready means of quenching thirst; to the pedestrian and railway traveller they offer still greater advantages. The inventor has, besides meeting a great public want, applied the process by which they are manufactured to the more agreeable and efficacious mode of administering medicines, a few of which will give the medicine-taking public some idea of the variety of forms under which medicine may be presented to them. The 'Effervescing Astringent Voice Lozenges' are particularly applicable to the use of public speakers, singers, and actors. These contain an alcoholic extract of eucalyptus or red gum, which is deposited on the uvula and back of the throat, acting as an astringent on those parts, without drying them. They are largely used by the principal operatic singers and by the clergy, for whom, it is said, they are prescribed by the highest medical authorities. The effervescing ipecacuanha lozenges rapidly relieve the huskiness arising from a cold. 'A tonic effervescing lozenge,' containing four grains of saccharated carbonate of iron attracted our attention. Besides the facilities afforded to gentlemen for taking their doses in the counting-

house or public courts, without asking for a glass of water to wash down the nauseous pill, or a glass to take a dose of 'the mixture,' it struck us that the iron frames of our soldiers may be further strengthened by use, when on the march, of these lozenges. A lozenge containing bismuth and soda is worth the notice of those who suffer from indigestion. A large variety of the effervescing lozenges are kept in stock by the maker.

MISCELLANY.

THE TREATMENT OF STAMMERING.—The Prefect of the Seine having consulted the French Academy of Medicine on the relative merits of the methods of treatment for this affection respectively recommended by MM. Colombat and Chervin, the Academy appointed a commission to inquire into the subject. This commission states that M. Colombat's plan, which was reported on favourably in 1830, continues to afford favourable results which are confirmed by the experience of years, and that it is therefore worthy of adoption by the authorities.

PUBLIC LIBRARIES OF PARIS.—An article has just been published in the *Bibliographie de la France* in answer to the statement made in the Assembly by M. Laboulaye, that the great schools of Paris are almost destitute of libraries. We learn from it that the École de Médecine possesses a library of 32,000 volumes, well cared for, and placed in a handsome room, capable of seating as many as 150 readers at a time. Adjoining it is the celebrated anatomical collection, known as the 'Musée Orfila,' occupying a suite of six rooms. Many of the other technological schools of Paris also have good, in some cases, large libraries, so that it would appear that M. Laboulaye was not altogether accurate in his statements.

ENCOURAGEMENT TO SCIENCE.—Amongst the grants made by the Royal Society from its Donation Fund is one of 100*l.* to Dr. Dohen, in support of the Stagione Zoologica at Naples, in which Mr. Ray Lankester and Mr. Balfour have recently made a series of observations on marine animals. One hundred pounds from the government grant of 1,000*l. per annum* has been appropriated to Dr. Klein's work on the Anatomy of the Lymphatic System. With regard to the Ponti will, in which the late Signor Ponti bequeathed a portion of his property to the 'Academy of Science of London'; as it does not appear what Society is indicated under this title, and as the relatives of the testator intend to dispute the will, the Council of the Royal Society, as at present advised, will take no steps in the matter.

THE PRIZES OF THE FRENCH ACADEMY OF SCIENCES.—At the annual public meeting of the Paris Academy of Sciences, the medical and scientific prizes were awarded as follows:—The Montyon Prizes of 2,000 francs, for the year 1872, to Dr. Luys for his Photographic Iconography of the Nervous Centres; to Dr. Magnan, for his researches on the Comparative Action of Alcohol and the Essence of Absinthe on the Nervous System of Man and Animals; and to Dr. Woillez, for his clinical treatise on the Acute Diseases of the Respiratory Organs. Honourable mention, with a gratification of 1,200 francs, to Dr. Mandl, for his practical treatise on the Diseases of the Larynx and Pharynx; to Dr. Fano, for his treatise on Ophthalmology; to M. Legrand de Saulle, for his work on the Hallucination of Persecution. Honourable mentions to Dr. Bonnafont for his treatise on Diseases of the Ear and memoirs on the Transmission of Sonorous Waves, etc.; to M. Lebon, for his investigations into the Nature and Amount of the Principles of the Tobacco-Smoke absorbed by Smokers, and the Effects produced by them; to Dr. Liouville, for his treatise on the Generalisation of Miliary Aneurisms; to Dr. Bourdillat, for his work on Urethral Calculi; to Dr. Gimbert, for his memoir on Eucalyptus;

to Dr. Lisle, for his clinical lectures on Mental Diseases; to Dr. Paslin, for his work on Gunshot Wounds; to Dr. E. Ritter, for his work on the Modification of the Secretions under the Influence of some Agents which Modify the Blood-Corpuscles. One of the prizes of 2,000 francs, for 1873, was awarded to M. J. Péan, for his work on the Partial or Total Ablation of the Uterus by Gastrotomy; Certificates and 1,200 francs to Dr. P. Bouland, for his Anatomical Investigations into the Normal Curvatures of the Spine in the Human Subject; and to Dr. Oré, for Intravenous Injections of Chloral. Honourable mentions to MM. Bergeret and Mayençon, for investigations into the Metals in the Tissues and Humours by the Electrolytic Method; to MM. Louis and Ernest Bremond, for their work on Cutaneous Absorption; to M. Burdel, for his work on Cancer considered as of Tuberculous Origin; to M. G. Felizet, with 500 francs, for his Anatomical and Experimental Investigations on Fractures of the Skull; to MM. Hardy and Montmoja, for a Photographic Clinical Work on Skin-Diseases; to M. Lefevre for his Hygiene and Therapeutics of Sweating induced by Vapour Baths, etc.; to Dr. Lunier for his work on the Progressive Increase in the Number of Lunatics and of its Cause, and on the part played by Alcoholic Drinks in the Increase of the Number of Cases of Mania and Suicide; to M. Ferd. Monoyer for his Memoir on Ophthalmology; to M. Auguste Ollivier, with 500 francs, for his work on Puerperal Pathology; to MM. Polaillon and Carville for their work on the toxic effects of Inea, a Pahonin poison; and, with 500 francs, to M. P. Bédard for his Clinical Thermometry. The Brant prizes of 3,000 francs for the year 1872, were awarded to Dr. J. J. Bouley (deceased) and to Dr. Robbe. To M. Metter were awarded 200 francs. The same prizes for 1873 were awarded as follows:—2,500 francs to Dr. Proust and 2,500 francs to Dr. A. Pellarin. The Godard prize for 1872 was awarded to Dr. Pettigrew of Edinburgh, for his work on the Muscular System of the Bladder and the Prostate Gland, and on the Mechanism of the Occlusion of the Urethra and the Ureters. The Montyon prize of 764 francs for Experimental Physiology was awarded to M. Georges Pouchet, for his work on Changes in Colour in certain Animals under the Influence of the Nervous System. The Lacaze prize of 10,000 francs, which was awarded for the first time, was given to M. Marey, and honourable mention to M. Bert.

NOTICE.

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The London Medical Record.

WEDNESDAY, JANUARY 20, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE FORMATION AND TRANSFORMATION OF BONE. BY PROFESSOR R. VIRCHOW.*

In performing my duty towards the society, I have selected a subject with which you are tolerably conversant, in consequence of various important debates and communications, but which, nevertheless, in its relation to pathology and practical medicine, presents many points of view which have not yet been sufficiently treated. It will, moreover, be interesting to you to have an opinion expressed *a non irato*, especially by one who for a long series of years has followed the changes of doctrine, and has personally been a fellow-worker therein.

Both of the most important points which in recent years have come into the foreground, have here received the most weighty consideration on both sides. I refer, on the one hand, to the question as to the internal arrangement of bone, especially the structure of the spongy substance; and, on the other hand, to the question of the process of absorption on the surface and in the interior of bone, especially the relation thereto of the giant-cells (myeloplaxes, osteoclasts). Both questions have been brought before you from the beginning by Herr Wolff and Herr Wegner. But, as is the case in the history of science, questions of this kind arouse anew a whole host of inquiries from their slumber in the bosom of science. Yes, it is a surprising spectacle, to see how a whole series of questions comes anew into play, of which I have already seen the cycle completed, and which I imagined to be definitely settled. I find, when I look back on my experience in these contests, a difficulty of no small magnitude, not merely affecting the younger generation, in the circumstance that terminology is constantly changing, that subjects which were known under certain names become suddenly unrecognised in consequence of the new names given to them, and that a department over which one had had a tolerably distinct survey, suddenly comes under observation as if through a clouded window, so that one is not sure that he understands what he sees.

There is scarcely a single subject in science which has presented in so marked a manner this change of perception in the period of time which I embrace within my personal recollection, as the doctrine of the medulla of bones. And although, at first sight, neither the osteoclasts nor the formation of the spongy substance have anything to do with the matter, allow me first to say a word or two regarding them. At the time when I myself entered the scientific world, Bichat's view still prevailed, according to which it was imagined that the medullary

cavity existed in the interior of bones as a true cavity, which, according to the *à priori* position of Bichat must be lined with a special membrane, endosteum or medullary membrane. Thus the interior of bones was looked on as a series of serous cavities; for the medullary spaces also were regarded in the same light as the medullary canal. For a long time the influence of this purely *à priori* assumption was maintained in medical language, and especially in pathology; and the greatest difficulty in determining accurately the relation of the marrow, lay in the fact that most men could not get rid of the idea of the 'medullary membrane.' From the moment when histological research was undertaken, we arrived at the opposite idea, that there is in fact no cavity, and that the appearance of such is only found in macerated bones. We very soon discovered that the fault of the old view lay in the circumstance that it was not found in the examination of normal and diseased bones, but of macerated bones. We found, that in place of the cavity of the macerated bone there was in the living or recently dead body a connected tissue: that the bone thus exhibited a continuity of tissue presenting only certain differences in individual sections, differences, indeed, of such a magnitude that it was then not yet quite possible to find a sufficient average type, inasmuch as the inner connection of these forms of tissue was as yet concealed from us. But after we knew that these cavities are full of a connective tissue, after the name medullary tissue (*tela medullaris*) came into use, the idea at once arose that it was an exceptional kind of tissue, as much a special structure as cartilage or bone is, a tissue to be recognised by certain characteristics, and having its own special place among the other tissues. If you look through the publications of the last fifty years, the *tela medullaris* constantly meets you in this state of special existence; and perhaps all of us are not entirely blameless of allowing such an idea to take root. I have personally endeavoured to change this idea, and to adduce evidence that the medulla does not only correspond with other tissues, but that there is in it a certain variability, so that altogether different forms of medullary tissue exist at the same points at different times, even under conditions which we call physiological, and at the part, where at an earlier period we recognised a certain tissue, we find later a quite different tissue (See *Cellular Pathology*, 4th edition.) Thus also in like manner it became evident on the other hand, that in different bones of the same body, in the physiological condition, so great differences existed simultaneously in the medulla, that it was impossible to draw up from any one part a schema that would be applicable to another part. It became evident that at least three different conditions of tissue had to be distinguished one from another; red marrow, yellow marrow, and gelatiniform marrow.

Of these three kinds of medulla, that which has been longest recognised is the yellow or fatty marrow. It is this of which pommades are made; it is this which Clopton Havers made the special object of his researches, the lobules of which he regarded as glands; it is this which is found in all tubular bones in the adult. It can with the greatest ease, according to modern histological knowledge, be ranged by the side of adipose tissue. It differs from the fatty tissue of the panniculus adiposus in nothing but in being of less firm consistence; it is more readily broken up. Considered histologically, it is just the same

* Read before the Berlin Medical Society, November 25, 1874. (*Berliner Klinische Wochenschrift*, January 4 and 11.)

thing as the panniculus adiposus. This yellow or fatty marrow becomes changed under manifold conditions into gelatiniform marrow, a substance which, when present in a certain state of completeness, is represented by only one structure in the human body—the vitreous body. The earlier idea of this was, that it was only a fluid (*humor*) secreted by the hyaloid membrane. For us, it is a solid tissue, and it most nearly approximates to the gelatiniform medulla. I have classed the tissue of the vitreous body with mucous tissue, because mucin is found in the intercellular substance. I must, however, remark that, in spite of the great similarity, this classification does not altogether hold good for yellow medulla, in so far as this manifests itself as a diverging variety, in which the mucus falls into the background, and the foreground is occupied by albuminates, the nature of which is not yet sufficiently known, but which resemble paralbumin.

When ordinary yellow medulla becomes changed into this gelatiniform marrow, the following is what takes place. While, in the yellow medulla, the fat-cells lie closely pressed together, so that on making a section we can scarcely see a pair of vessels ramifying between them, we find that in the gelatiniform tissue the cells become small, and that there are spaces between them. The cells lie further apart; the fat no longer fills them completely. Usually single drops only are found in them, in many cases nothing more. The simple cellular form of the fat-cells is also in some degree altered. On the other hand, there becomes collected in the intercellular spaces a quite soft substance, like the vitreous humour, which is in fact the principal constituent of the gelatiniform medulla. The difference from fatty tissue is thus indeed great. While in the latter the large cells constitute nearly the whole of the tissue, in the gelatiniform tissue the intercellular substance assumes large dimensions. Herewith the mass assumes a soft, compressible, diffuent character; a character which our veterinarians have quite rightly designated by the name of medullary fluidity (*Markflüssigkeit*). As the opportunity of seeing this kind of marrow is not very frequent, I have brought with me a fresh bone which shows this condition very well. It is a longitudinal section of a femur: the whole mass of the marrow trembles like jelly. In this marrow the vessels are preserved, many of which can be seen with the naked eye; and (a fact to which I will call special attention with reference to this case) in consequence of the extraordinary softness of the tissue, hæmorrhagic effusions very readily take place into its substance, whereby greater or smaller parts of the mass become permeated with blood, so that, as you see here, in the upper section of the thigh-bone, a dark red appearance is produced, which, however, does not indicate the condition which is called red medulla. It is not everything which appears red that is red marrow in the sense in which I use the term. It is the gelatiniform marrow which almost always accompanies osteomalacia; and even in this case we should perhaps be justified in speaking of osteomalacia, in so far as, within the gelatiniform region, microscopic examination shows a direct melting down of the trabeculæ of the bone into fibrous shreds. The individual from whom the bone was taken was in a strongly marked state of syphilitic cachexia, and the local process in the marrow is an atrophic manifestation which we may class along with the so-called yellow osteomalacia.

Different from both these kinds of marrow is the

red marrow, which, physiologically, we meet with as the commencement of the formation of medulla, which occurs in its greatest extent in children in the bones, even in the long bones; but which in adults is found in those bones which consist chiefly of spongy substance, and have no special medullary cavity, such as the bones of the vertebrae, the bones of the base of the skull, the ribs and sternum, and a great part of the pelvic bones. These bones, throughout the whole of life, show conditions of marrow which never pass into complete yellow medulla. The distinguishing characteristic of this third variety is, that the cellular structure predominates. In this respect it resembles yellow medulla in so far as very little intercellular substance is present; but the cells, which are mostly round, lie very close, and between them ramify numerous vessels of wide calibre, giving the tissue its red appearance. To a certain extent this may be called young marrow; but as it is persistent in many parts, the appellation is not altogether applicable. In any case its position with regard to the two other kinds of medulla may be thus defined: that it passes into yellow medulla by enlargement of its cells and by assumption of fat, and into gelatiniform marrow by the extension of the intercellular substance, which widens the spaces between the cells. A relatively much greater amount of yellow or gelatiniform marrow may arise from a mass of red marrow; and on the other hand, the transformation of yellow or gelatiniform medulla into red is not possible without a numerical increase of the cellular elements. This takes place in general by a process which is connected with the multiplication of existing cells, and is called into activity by irritation.

I lay stress on these conditions, which perhaps are well known to you, because, on looking through the most recent literature of the development of bone, just at the point where ossification takes place, I meet with the assertion that new bone-tissue originates from medulla. Even in the points in which I imagined that I had established some amount of certainty by my researches, e.g., in regard to the development of bone from periosteum, where some years ago I had the pleasure of finding that the most eminent histologists acknowledged that my position was correct, it is now said, 'the bone-tissue arises from marrow.' When it is asked how the development of new vascular canals takes place in the midst of cartilage, the answer still is—all originates from marrow. I do not at all understand what this means. If marrow is in itself a variable tissue (a *Wechselgewebe*, as I am accustomed to say) which is quite different at different times, the cells of which in different circumstances behave quite differently with regard to their size and arrangement, and to the special peculiarities of their physiological function, I know not what is meant when the assertion is instantly repeated—they are medullary cells. Young undeveloped cells are apparently indifferent cells; they have nothing characteristic in themselves, so that one falls into the difficulty of confounding them with other young or indifferent cells. This is also the case with the red marrow. It, therefore, seems to me that error must arise from the extension at will of a recognised terminology to a territory to which the tissues of which we speak do not at all belong. It is my opinion that, since marrow is in itself a variable tissue, possessing no special peculiarities, but rather finding in its various conditions its analogies in various parts; a tissue which, according to its dif-

ferent conditions, must be brought into a distinct category of forms of tissue, the expression 'marrow' ought not to be used further than as a territorial (topographic) one, *i.e.* for those parts where within the limits of a bone (including the cartilage) a soft physiological tissue is developed, differing from cartilage, from bone, and from the periosteal connective tissue, but yet belonging to the group of connective substances. That only is marrow; and we will call the space in which it is contained a medullary space or medullary cavity, assuming that it is not a heterologous pathological tissue.

This 'inner' tissue is the youngest son of a common mother or mothers, of which the bone, as a whole, with its individual component tissues, is the offspring. At first there is no marrow; it is the last tissue which is formed; and it indicates the completion of the bone. Whence comes this tissue? On this there have been long and numerous differences; and I fear that we have not yet arrived at the resting point. In my opinion, the marrow, arises from both the principal tissues which form the substance of bone—either cartilage or osseous tissue. Whether the periosteum can form marrow I am not certain. If a tissue be produced from periosteum, which resembles young red medulla, I have never seen yellow or gelatiniform marrow produced from the tissue, nor have I ever seen it remain as red marrow. If a mass of young tissue with indifferent cells be found on the surface of a bone, I do not know on what grounds this substance should be called marrow.

As regards, on the other hand, the transformation of cartilage into marrow, this is a matter which I imagined that I had settled a quarter of a century ago in my memoir on rachitis. I must still, to-day, hold to the opinion that cartilage can be directly transformed into marrow; and although some observers of the most recent time have put forth very different opinions, I am still not convinced of the correctness of their opinions. It will, perhaps, be said with regard to rachitis, that it is a pathological case. In reply to this, I remark: This is an erroneous objection. Pathological cases are very fitted for establishing physiological laws. I know no example of a case in which a process which occurs pathologically may not also take place physiologically; the difference lies only in that the locality, the extent, and the special circumstances under which the process occurs, are different. But the *modus procedendi* remains the same. Examples are found where a medullary cavity, filled with yellow adipose tissue, has been formed in the costal cartilage, in its axis, apart from all surfaces. In some circumstances, indeed, it is seen that the cartilage-cells take up fat; and this they do not in small quantities, but they are seen to enlarge and grow visibly, and, while they yet remain in the substance of the cartilage, they contain fat. Then the substance of the cartilage around them becomes soft; and thus the medullary space in the cartilage increases through a new growth of fatty marrow. The transition from one condition to the other, from cartilage to fatty tissue, can be observed to take place directly, without any intervening stage.

It is now said, indeed, that in the formation of bone from cartilage, the new vessels, which are formed in the cartilage from without inwards, are pushed in from the perichondrium, and carry with them a certain quantity of 'marrow-cells,' which they have formed on the inner layer of the perichondrium,

and which they push before them deeply into the cartilage. I have very closely studied the development of these papilliform vascular tufts, very much resembling the villi of the chorion, which sink perpendicularly into the cartilage and which usually precede ossification; and I am of opinion that there is no pushing in of elements from without, but that the new elements are formed by metaplasia from the cartilage-cells. Even Kölliker has lately asserted that a pushing inwards takes place. In spite of this, I regard as correct the position, that a direct transformation takes place within bone, and that quite similar deposits take place in cartilage at a distance from the surface, which show in the most distinct manner the development of medullary cells from cartilage-cells.

(To be continued.)

MARTINDALE ON JABORANDI AS A POTENT SUDORIFIC AND SIALAGOGUE.

Mr. William Martindale, F.C.S. (*Pharmaceutical Journal*, January 16), writes: Having received, through Messrs. Hearon, Squire, and Francis, a further supply of this remarkable drug, which has excited much attention physiologically and therapeutically in Paris during the last twelve months, information respecting its previously doubtful botanical origin is now obtainable. In my former communication on jaborandi,* I said that I thought the statement of Professor Baillon that it was the leaf of *Pilocarpus pennatifolius* was erroneous, giving as my reason that, having obtained some of the fresh leaves of *P. pennatifolius* from Kew Gardens, these differed so much in taste, odour, and more especially in physiological action from those of jaborandi, that 'Dr. Ringer and others, as well as myself, who watched the cases,' in which both were used, 'and examined the leaves and infusions of both, were satisfied this was not the same as the jaborandi we had tried before.' I further stated that of course as these leaves of *P. pennatifolius* 'were from a plant of hot-house growth, grown in its natural habitat its effects might be different.' I noticed lately that Professor Baillon still adheres to his statement.† Now that we have the whole leaf of jaborandi to compare with herbarium specimens of *P. pennatifolius*, they undoubtedly greatly resemble each other. Still, in our comparison with a specimen of *P. pennatifolius* at Kew, collected near Assumption in Paraguay, Professor Oliver and Mr. Holmes noticed a difference in certain characters; and as jaborandi comes from Pernambuco, near to the Equator, whereas the Kew specimen was collected nearly 1,000 miles further south, beyond the tropic which seems to be its general habitat, there is a great probability that they are not the same; if not the same, jaborandi is a nearly allied, perhaps, as yet, undescribed species. This I leave for Mr. Holmes, who has taken the subject in hand, and will give a full botanical description of the parts of the plant that have been received, and other botanists, to decide.

In forwarding the supply, the agents in Pernambuco wrote that 'it is a medical shrub known by us, but little used, notwithstanding its excellent virtues, as the medical men here prefer using foreign medicines. It is an excellent sudorific in the dose of one

* *Pharmaceutical Journal*, 1874, p. 365.

† *Journal de Pharmacie et de Chimie*, Janvier, 1875, p. 23.

octave to a cup of infusion. It is a good sialogogue. The tincture is used as a friction on paralysed members.*

Of the importation lately received, the leaflets form about one-fourth of its weight, the remainder being stems and leafstalks, with a few roots and fruit, but unfortunately no flowers. Compared with that which I first obtained from Paris, the leaflet of this is much more pungent in taste, and, I believe, for reasons given below, much more active physiologically. When chewed, the taste is piquant, and excites a glowing heat on the tongue, like that caused by pellitory root. I also find, from working with it, that it irritates the skin when applied externally. On the inner surface of the bark of the root, white shining crystals are distinctly visible; but, as Dr Attfield is about to make a chemical investigation of the different parts, it is premature to offer any opinion about these. Therapeutically, Dr. Ringer is continuing his investigations at University College Hospital.

Having heard doubts expressed about the activity of the jaborandi last received, as compared with the results obtained in the first trials I witnessed at University College Hospital, I became somewhat sceptical about its efficacy, and, therefore, expecting to get little results, tried it upon myself. To me, the effect seemed simply marvellous. I made an infusion of sixty grains of the bruised leaf in five ounces of boiling water, let it stand fifteen minutes, and strained it. On pouring the water upon the drug, I noticed that the characteristic odour almost entirely disappeared. The infusion was of a pale sherry colour, had a mawkish bitter taste, but did not excite the glowing heat upon the tongue that the leaf itself did; this I thought strange, and on tasting the dregs I found they still retained their pungent taste when chewed. It was evident to me that, if its diaphoretic properties depended on the principle having this pungent taste, boiling water does not extract it. At 11:30 P.M., on retiring to rest, I swallowed as much of the dregs as I could, probably fifty out of the sixty grains used, and washed them down with the infusion. In five minutes I felt a glow, an increased circulation, an uneasiness in the head, became restless, and the secretion of saliva began to increase. At 11:45, a quarter of an hour after taking the dose, I was perspiring freely. The salivation and perspiration continued to be profuse, until my sight became blurred. At a distance of four feet I could see my wife, but could not distinguish her eyes. On this occurring I became a little anxious, as I had evidently taken an overdose. I requested that Dr. Ringer might be sent for; he came about 12:15 A.M. The impaired vision still continued, but I was glad to find that it was only at a distance—near objects I could see distinctly enough. The pupils of the eyes were slightly dilated, I was informed. The pulse when first noted was 96, and got up to 104. The temperature was not taken. The depression was never very great, but a little before Dr. Ringer came I began to shiver, more clothes were put on the bed, and some spirit and water given to me. The excessive perspiration still continued from all parts of the body. A Turkish bath, which I have frequently had, and seen others have, was nothing to it; the saliva for a time required almost constant ejection; the secretion of this from the glands in the cheeks caused a kind of collapsed feeling in them. My speech was so affected that articulation was both difficult and indistinct. Eventually, about 1 A.M., I was sick, and vomited at first a quantity of saliva

which I had swallowed. By putting my finger in my mouth vomiting was further excited, until a portion of the jaborandi returned. The effects were now subsiding: more spirit and water were given to me, and my night-shirt, soaked with perspiration, was changed. I was put into a warm blanket, and about 1.40 A.M. I fell asleep and slept a quiet sleep till 6 A.M. The pulse on awakening was 88—normally with me it is 80. I got up about 7.30 A.M., and although I felt squeamish all next day, I was able to attend to business as usual. When the action was at its height, on uncovering my arm, I am informed the perspiration passed off in steam from my hand and night-shirt sleeve. The saliva collected, which was distinctly alkaline, measured sixteen ounces; in addition to which, a quantity had flowed on to the pillow while I slept, as it was quite wet in the morning. I came to the conclusion that I should not like to pass through the ordeal again. My thanks are due to Dr. Ringer, whose presence and kindness greatly relieved my anxiety.

We have undoubtedly in jaborandi a drug which produces a marked physiological action; how far it will prove useful therapeutically in cases of fever, diabetes, and other diseases, remains to be seen. A drachm-dose of the last received is no doubt excessive, that is if the whole be swallowed. The strained infusion, from what I hear, produces but little effect.

M. Robin* gives an account of the results of his researches in M. Gubler's wards in Paris, but no mention is made of its peculiar action upon the vision, which, so far as I am aware, has not been previously noted.

A YEAR'S EXPERIENCE IN ST. BARTHOLOMEW'S HOSPITAL.†

The present report has been very carefully compiled by the medical registrar, Dr. Hollis, and the surgical registrars, Messrs. Butlin and Milner; and from its complete and concise character is worthy of even more extended notice than can be given in these pages. St. Bartholomew's Hospital possesses 676 beds; 230 for medical cases, 428 for surgical, while 18 are unassigned; 21 are allotted to diseases of women, and 26 to ophthalmic cases. During the year 1873 there were under treatment 5,902 cases (2,382 being medical and 3,520 surgical). Of this number, 4,530 were discharged cured and relieved, 320 were unrelieved, 563 remained in the hospital at the beginning of 1874, and 489 died; the percentage mortality on the total number under treatment thus being 8.3 (the mortality among the medical cases being 14.6, surgical nearly 4). Fourteen patients were brought in dead, and 395 *post mortem* examinations were held. It will thus be seen that in no fewer than 108 cases, or more than one-fifth of the whole number of deaths, there was no necropsy; a fact in itself which shows how great is the unwillingness among friends of patients to allow such examinations to be held.

The main portion of both the medical and the surgical report consists essentially of two tables; one, in which all the cases of disease are tabulated with regard to their results, and the other in which the comparative frequency and mortality at different

* LONDON MEDICAL RECORD, December 16, p. 794, from the *Bulletin Général de Thérapeutique*, November 30, 1874.

† Statistical Tables of the Patients under Treatment in the Wards of St. Bartholomew's Hospital during 1873.

ages in every class of disease are recorded. This latter table is, the present writer believes, peculiar to St. Bartholomew's Reports, and is certainly one of no little value to the statistician. Following Table I is an appendix, in which brief mention is made of the more interesting examples of disease. It is impossible here to attempt anything like a complete analysis of these statistics, but a few facts may be quoted sufficient to show the nature and extent of the reports. Out of a total of 199 cases of acute rheumatism, ninety-nine were uncomplicated, forty-seven had pericarditis (in three associated with endocarditis), fifty-four had endocarditis, while nine had lung-complications; there were only five fatal cases, two of which were complicated with cardiac lesions and three with pulmonary. There were also 142 cases of subacute* rheumatism under treatment. Of enteric fever there were eighty cases, of which number thirteen (or 16.4 per cent.) died, one of the fatal cases being contracted in the hospital, and one case dying from intestinal hæmorrhage. One case of cretinism occurred, in which there was absence of both thyroid and thymus. There were twenty-one cases of right hemiplegia and seventeen of left, the males being nearly three times as numerous as the females; in one case only is it noted that aphasia occurred with right hemiplegia. A case of locomotor ataxy presented symptoms of lead-poisoning. Among thirty-six cases of chorea, one of which was fatal, seven had heart-disease. Three cases of pericarditis, apart from acute rheumatism, are recorded; one was complicated with left hydrothorax, one with gout, and one with old rheumatic endocarditis. Of valvular disease of the heart there were in all 112 cases, twenty-four being cases of aortic affection (seven with mitral disease), thirty-seven of mitral, and fifty-one are unspecified. In one case of mitral disease there was old thrombosis of the inferior cava, and a varicose condition of the epigastric veins. Pulmonary affections of course form a very large contingent. There were 139 cases of phthisis, fifty-five of which were fatal; there were seventeen of acute and 102 of chronic bronchitis, twenty-three being fatal; fifty-eight of pneumonia; twenty-two of pleuro-pneumonia; and twenty-nine of pleurisy, fourteen being on the right side, thirteen on the left, while two were double. A fatal case of empyæma in a man was due to the rupture of a hydatid cyst into the right pleura. Six cases of typhlitis were treated; one proved fatal from pyæmia. A case of acute hepatitis, following obstruction of the bile-duct, was discharged cured. In a case of leucæmia, transfusion of blood was performed, but the patient was eventually discharged unrelieved. Acute albuminuria furnished twenty-three cases and seven deaths, chronic albuminuria eighty-six cases, with twenty-nine deaths. There were no fewer than seven cases of progressive muscular atrophy, of which six were males, three of these being between the ages of thirty-five and forty-five. The medical report concludes with an elaborate table showing the average stay in hospital of the medical cases; this being 34.26 days. It is further calculated that out of the total number of 230 beds there was, throughout the year, a nightly average of 22.12 beds unoccupied.

Turning now to the surgical report, it may be

noted that the average stay in the hospital of surgical cases is nearly the same as that of the medical, namely, 33.09 days. The appendix to Table I. is planned on a more extensive scale than in the medical section, and from it a few out of the numerous interesting facts recorded may be gleaned. Under the head of pyæmia it is stated that 'a man, aged thirty-one, had a wart removed from his hand by a quack, who then applied burning sulphur to the wound. Within a few days lymphangitis of the arm and glandular abscess, followed quickly by symptoms of septicæmia, pleuritic effusion, jaundice, abscess in neck, etc., from which he, with great peril, recovered.' In a case of tetanus, the symptoms supervened on the cicatrization of a wound in the ham, the nerve not being involved in the injury; the symptoms, at first local, soon became general, and death occurred on the fifteenth day after admission. Three cases of popliteal aneurism were treated by ligature of the femoral artery; one recovered without accident; the second, after gangrene of several toes, attributed to the patient having moved across the ward too early; while the third case died after an ineffectual attempt to control recurrent pulsation by the employment of a second ligature. Two cases of spina bifida were treated, both with fatal result; in one case (an infant six weeks old) injection of iodine was practised, and death occurred in seventeen days from spinal meningitis and pleuropneumonia; in the other case (a male aged five) tapping afforded relief from symptoms of compression for a few hours, when convulsions recurred, terminating in death. Details are given of several cases of fracture of the skull, of which, perhaps, the most remarkable was the following. 'A compound fracture of the frontal bone in a man, aged eighteen, in July, 1871, was followed by a slight necrosis of a portion of the bone. On account of fits, etc., following a second fall, he was re-admitted in December, 1872. Symptoms of compression gradually supervened in March, 1873, and he was trephined when apparently at the point of death. The dura mater was found distended, and the brain distended beneath it. A bistoury was plunged into the brain, and pus spouted out. He recovered well, and in August was able to return to his work.' Remarks are also made upon cases of special interest in injuries to organs and limbs. In the table of surgical operations performed during the year it is recorded that seven primary amputations through the arm, forearm, and thigh, were all successful; one secondary amputation of the leg recovered, while out of thirty amputations for disease through the forearm, hip-joint, thigh, knee, ankle and leg, one only (through the leg) was fatal. Nineteen operations for inguinal hernia were performed (two without opening of the sac); there were seven deaths, in all of which cases the sac was opened. For femoral hernia there were nine operations, six with opening of the sac, four of which were fatal, as also were two of them in which the sac was not opened. Death occurred in all cases save two from peritonitis; in one case it was due to septicæmia, in the other to phthisis, six weeks after operation. Out of a total of 140 cases of erysipelas, phlegmonous inflammation and cellulitis, thirty-one arose in the hospital, and of this number eleven followed operations; there were in all eight deaths from these causes, six of these being cases which were admitted into the hospital with the disease. The surgical report concludes with a table of amputations with the percentage of deaths from 1864 to 1873 inclusive.

* It would be interesting to know what standard is here adopted for the term 'subacute.' The distinction between 'acute' and 'subacute' rheumatism is, in many cases, very difficult to draw.

This table derives especial value from the large number of cases which it includes, and it would be well if, from time to time, the statistics of different classes of disease treated in our hospitals could be thus summarised. It may be remarked that with a total number of thirty-eight primary amputations of the leg the percentage mortality was 52; with thirteen of the thigh it was 30; while in secondary operations these proportions are reversed: thirty-one cases of amputations of the thigh yielding a death-rate of 47·61 per cent., and twenty of the leg, yielding 42·85 per cent. In amputation for disease the mortality after operation on the leg was 30·88 per cent. (eighty-nine cases), while that after amputation of the thigh was 28·34 per cent. (with 163 cases).

Sufficient has been quoted to show how complete these reports are. There can be no question as to the great value of the publication of such annual records of the work done in the London hospitals. It would, perhaps, add to their value, as it certainly would to their utility, if some uniform plan could be adopted, on which all such reports should be drawn up. At present the statistics of each hospital are drawn up on a plan peculiar to itself, so that it is to be feared that much needless labour will be given to the statistic of the future in his desire to collect materials of the natural history of disease.

SIDNEY COUPLAND, M.D.

ZIEGLER ON THE EXPERIMENTAL PRODUCTION OF GIANT-CELLS FROM COLOURLESS BLOOD-CORPUSCLES.

Ernest Ziegler (*Centralblatt für die Medicinischen Wissenschaften*, nos. 51 and 58, 1874,) cut from mirror-glass small glass plates of different sizes, partly quadratic, partly long rectangular, ground off the edges carefully, and affixed to each with porcelain glue a fine cover-glass of the same size, so that there remained between the glass lamellæ an empty capillary space, accessible from all sides, with the exception of the corners. These plates were brought under the skin and periosteum of dogs and rabbits, or were introduced into one or other of the large cavities of the body. This was done under the impression that the colourless blood-corpuscles would penetrate into all the spaces, would wander under the cover-glass and there, independently of the organism, be nourished by lymphatic fluid, and undergo this or that metamorphosis. The author met with many failures, and recommends the following method. Small plates of glass must be used, 10 to 20 millimètres (0·04 to 0·08 inch) long and 10 millimètres (0·4 inch) broad. Large ones easily occasion profuse suppuration. The plates were generally left from ten to twenty-five days in the spot operated on. The best field for operating is the inner side of the thigh of not too old dogs. Rabbits gave no satisfactory results. After the plates were removed they were slightly washed, and at once placed in a 1 per cent. solution of perosmic acid, and allowed to remain there for two days. They were then placed in spirit with glycerine, then in pure glycerine.

The following were the results of sixty-five experiments. An in-wandering of colourless blood-corpuscles took place in all cases. The changes of the same in the first ten days varied according to the direction of the development. After several days, a flattening of the corpuscles and the formation of a cellular mosaic were often to be observed. After this

time the author found the following, up to the twenty-fifth day.

In the greater number of cases only retrogressive changes were observed. The progressive processes showed the different developmental directions.

1. *The Formation of a Reticular Tissue with Enclosed Epithelioid Cells and Rich Development of Giant-Cells.*—This is, without doubt, the most interesting result. The giant-cells consist of finely granular protoplasm and certain numerous large oval nuclei and distinct nucleoli, sometimes with round sharp contours, at others provided with processes. They lie in the above-mentioned reticular tissue, surrounded by cells which in their immediate neighbourhood are of considerable size, but diminish towards the periphery. The size of the giant-cells is very various, and it can be seen, in one and the same microscopical preparation, how they are developed from the colourless blood-corpuscles by increase of the protoplasm and simultaneous increase of the nucleus, till they reach the dimensions of the largest known giant-cells. In preparations in which giant-cells were present, the author never observed the development of blood-vessels.

2. *Development of Connective Tissue and Vessels.*—Similar appearances to those of developing connective tissue were found. The preparations incline the author to lean to the paracellular origin of the reticular tissue. As the first stage in the development of the vessels there is clearly observed a network of peculiarly changed colourless blood-corpuscles ranged one on another, which increase considerably on the surface, and are firmly fixed on the edges, and gradually assume an epithelioid character. In addition to this so-called secondary formation of vessels, the author observed at a later date budlike formations from the wall of existing vessels. Still even here the author thinks that these bud-like formations are formed by the opposition of neighbouring lymph-corpuscles. The author draws the following conclusions.

1. Real giant-cells can develop from colourless corpuscles.

2. Under similar conditions, cytogenous connective tissue with epithelioid cells is formed.

3. These formations are to be regarded as analogous to certain forms of tubercle; or, in other words, tubercle with its giant-cells is an inflammation-focus in which the colourless corpuscles heaped up at any spot (probably intracanalicular—Rindfleisch, Schüppel), undergo a development. This, according to the author, is caused by imperfect nutrition of the cells, in so far as this is not sufficient to form new connective-tissue. According to this view, giant-cells are to be regarded as imperfect new cell-formations.

4. The formation of intercellular substance in reticular tissue is paracellular, arising anew by a cutting off from the sides of the cells.

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ANATOMY AND PHYSIOLOGY.

TARKANOFF ON THE FUNCTION OF THE SPLEEN. At the meeting of the Paris Society of Biology, on December 26, M. Tarkanoff communicated the result of a series of experiments undertaken to determine the function of the spleen, and to ascertain if it may be considered as helping in the formation of white corpuscles. This opinion has gained so

strong a footing in physiology, that it has become an axiom since the labours of Vierordt and Funk, who, comparing the blood of the splenic artery with that of the vein, established that in the latter there was one white to every seventy red corpuscles. In the arterial blood, on the contrary, the proportion was normal. They thence concluded that the spleen was an organ forming white corpuscles, but they made their experiments upon dead animals. M. Tarkanoff, however, made his experiments on living animals; he performed section of the splenic nerves, when hyperæmia and swelling of the spleen ensued, and at the same time a veritable leucocythæmia. This experiment appeared to him to be in accordance with M. Vierordt's conclusions, since greater activity in the circulation of the liver brought on an increased production of white corpuscles; but at a subsequent period M. Tarkanoff found that a simple wound, without any section of the splenic nerves, would bring on a similar leucocythæmia; the excess of circulatory activity could not therefore any longer be taken into consideration. He therefore wished to investigate the exactness of Vierordt's and Funk's data, and made an exact reckoning of the white corpuscles of the splenic vein and artery on the living animal by M. Malassez's method; but he first felt it necessary to discover in what proportions these corpuscles were present in the arterial and venous systems. The results were so different that he could not arrive at any conclusion, but he invariably found that the white corpuscles were more numerous in the left than in the right side of the heart; and in one analysis alone he found that the left ventricle contained 2,765 corpuscles, whilst the right contained only 1,530. He also established a similar fact in the vessels of the spleen, which is in opposition to what writers have hitherto maintained. The proportion of white corpuscles is always more considerable in the arteries than in the veins; in one case he found 8,900 in the artery, and only 9,500 in the vein. He also ascertained that this increase of the corpuscles in the artery was larger in proportion as the circulation of the spleen became more active. After dividing the splenic nerves he counted 10,000 white corpuscles in the artery, and only 4,300 in the vein. M. Tarkanoff, therefore, concludes that in all instances the white corpuscles are less numerous in the splenic vein, and that this diminution becomes so much the more marked as the activity of the circulation is greater.

ETZINGER ON THE DIGESTIBILITY OF GELATINE-YIELDING TISSUES.—J. Etzinger (*Zeitschrift für Biologie*, 1874, Band x., abstract in *Centralblatt für die Medicin. Wissenschaften*, no. 45, 1874) tested on the one hand the action of artificial gastric juice on the ligamentum nuchæ, tendon, cartilage and bone; and on the other hand fed a dog, whose excretion of nitrogen was diminished to a constant low value by being allowed to hunger for several days, with the proper substances.

The increase in the quantity of nitrogen after the supply of the above substances is taken as the standard for their utilisation in the body.

1. *Bones*.—Bone-powder, prepared by rasping the compact substance of ox-bones, dissolved tolerably richly in hydrochloric acid (0.3 per cent.). After ten days' digestion of 10 grammes (150 grains) of the powder, with in all 1,200 cubic centimètres (rather more than 40 ounces) of dilute acid, only 1.83 grammes remained undissolved. The residue

was richer in organic substance than the original substance, organic substance, however, being plentiful in the solution. The dog experimented on showed, after taking 150 grammes of bone, an increase in the excretion of urea of about 8 grammes *per diem*. An absorption of lime from the bones could not be proved; on the contrary, the quantity of this mineral in the urine showed a diminution. The author supposes that the cause of this phenomenon lay in the diminished decomposition of the tissues of the body through the supply of gelatine. The phosphoric acid showed a small increase. Corresponding to this, the fæces evacuated during feeding with bones contained 308.5 grammes of ash, *i.e.*, somewhat more than the supplied bones.

2. *Cartilage*.—Costal cartilage of a calf dissolved in not inconsiderable quantity in a 0.3 per cent. solution of hydrochloric acid (*e.g.* 24.3 per cent.); but much more on the addition of pepsin (74.9 per cent.). After feeding with cartilage, the fæces only contained traces thereof; the excretion of urea showed an increase of about 11 grammes after feeding with 72.2 of dry cartilage at 100° Cent.

3. *Tendons* were affected little by the action of a 0.3 per cent. solution of hydrochloric acid. After eight days' digestion the amount dissolved in the pepsin mixture was 12.05 per cent.; on the contrary, after three days they were broken up and dissolved, and 94 per cent. had gone into solution. The solution did not form a jelly after neutralisation and evaporation. The ligamentum nuchæ of an ox conducted itself similarly; on digestion for ten days it disappeared completely, only an unimportant residue remaining. The dog, after hungering for several days, received in one day 367.1 grammes of tendon, on the next 360.3 grammes, corresponding to 245.8 grammes of the dried substance. In the fæces only a very minute quantity of tendon could be found. The excretion of nitrogen in the urine rose to 21.2 grammes (the tendon contained 46.4 grammes).

All gelatine-yielding tissues are therefore capable of digestion and utilisation; most extensively tendon, then cartilage, and lastly bone, of which less organic substance is absorbed, probably on account of its rapid passage through the intestinal canal. The author confirms the results of Frerichs and Kühne that gelatine, by digestion with pepsin and hydrochloric acid, loses its property of gelatinising.

SERTOLI ON THE TERMINATIONS OF THE GUSTATORY NERVE.—E. Sertoli (*Gazetta Medico-Veterinaria*, Anno iv., abstract in *Centralblatt für die Medicin. Wissenschaften*, no. 55, 1874) investigated the papilla foliata of the tongue of the horse. For the investigation, the author employed a very interesting modification of the gold method. Small pieces of fresh tissue were placed in a relatively large quantity of gold solution ($\frac{1}{4}$ to $\frac{1}{3}$ per cent.) and allowed to remain therein for eighteen or twenty-four hours, then washed out with water, and placed for twenty-four to forty-eight hours in a 2 per cent. solution of bichromate of potash. They were then washed out with water and placed in absolute alcohol, in which they were completely hardened, and in which the colouring already begun in the bichromate of potash became perfect. The colouring can be accelerated by exposing the preparation in bichromate of potash to a temperature of 30° Cent. (86° Fahr.). The papilla foliata is very richly supplied with nerves. In the subepithelial connective tissue

the nerves form a very dense network, to end in the two following ways : (1) in the gustatory bulbs, which are present in extraordinarily large numbers in the folds and furrows of the papilla foliata; (2) in an intra-epithelial network of fine non-medullated nerve-fibres, intensely coloured by chloride of gold. In addition to this network, stellate bodies coloured dark violet by chloride of gold lie among the pavement-epithelium, the bodies being similar to those described by Langerhans from the human epidermis. Sertoli is inclined to regard them as non-nervous. As this intraepithelial nervous network lies deeply imbedded and protected in the furrows of the papilla foliata, it cannot, according to Sertoli, be regarded as an anatomical substratum of tactile sensibility, and he also claims it as a gustatory organ, as the form of termination of the specific sensory nerves of the tongue. In fact, this same intraepithelial nerve-ending, which often penetrates to the most superficial layers of the epithelium, occurs quite commonly in the papillæ fungiformes of the horse's tongue. These papillæ are distributed in great numbers and with great regularity over the whole dorsum of the tongue, and it is very tempting to regard this form of ending as the anatomical condition of the gustatory sense distributed over the whole surface of the tongue.

The conclusion of the paper is occupied with the consideration of the minute anatomy of the gustatory discs (which are tinged of a very characteristic dark colour by chloride of gold).

PLÓSZ AND GYÖRGYAI ON COAGULATION OF BLOOD IN THE LIVING ANIMAL.—Plósz and Györgyai (*Archiv für exper. Path. und Pharmac.*, Band ii. 1874) confirm the assertion of Naunyn, that injection of lake-coloured blood into the veins of a rabbit is followed in most cases by death, through thrombosis of the right heart and pulmonary artery. Of fourteen rabbits, only two survived the injection. In every case where the animal died, thrombosis was proved to be the cause of death. Outside the body, the addition of lake-coloured blood to normal blood greatly accelerates coagulation.

The second part of the paper is occupied with the question of the injection of foreign blood. Fourteen rabbits received varying quantities of defibrinated blood from hens and turkeys; only one of these survived, two were killed intentionally, eleven died in consequence of the injection, some of these on the sixth day after the injection. As to the cause of death, in three cases extensive thromboses in the right heart, in the large veins of the right heart, and in the pulmonary artery, were found; in five cases the section was not made early enough to determine whether the thrombosis took place *intra vitam* or not; in three cases the presence of thrombi was distinctly ascertained, so that to the blood as such a poisonous action is to be ascribed. [*Vide* the experiments of Creite, who asserted the poisonous action of the serum of the blood of the bird in the rabbit.] The blood-corpuscles of the bird could be discovered several hours after the injection, but they gradually broke down, while the stroma became discoloured, and the nuclei were set free. [*Vide* the results of the experiments of Landois, LONDON MEDICAL RECORD, November 16, 1874, p. 729.—*Rep.*] Blood-colouring matter appeared in the urine. In the frog, the solution of the foreign blood-corpuscles occurs much more quickly than in the rabbit. [*See* also the results of W. Müller's experiments, where no thrombosis was observed after the injection into the veins of dogs of

very large quantities of defibrinated dogs' blood. LONDON MEDICAL RECORD, June 24, 1874, p. 388.—*Rep.*]

DANILEWSKY ON THE RESPIRATION OF MUSCLE.—B. Danilewsky (*Centralblatt für die Medicin. Wissenschaften*, no. 46, 1874) has investigated this subject in Sczelkow's laboratory. It is a well-established fact, that muscular activity causes an increased consumption of oxygen in the muscles. As to the significance of this fact, physiologists differ in their opinions (Hermann and Ranke.) The absorption of oxygen, as well as the excretion of carbonic acid, both of the active and passive muscles (gastrocnemii of a frog), at different temperatures, were carefully measured by means of a special apparatus devised for this purpose. The muscles were weighted with one gramme. From a table of the gas-analyses, which were conducted after the method of Bunsen, he arrived at the following results.

1. The quantity of carbonic acid excreted by a tetanised muscle, in comparison with that by a passively moved one, is smaller, the higher the temperature.

2. The absorption of oxygen by the active muscle always remains behind that of the passively moved one. It may, therefore, be concluded that this does not stand in direct connection with the process of muscular contraction. This is explained by the unequally greater contact of the passively moved muscle with new air than in the tetanised one. The increased absorption of oxygen by the passively moved muscle produces almost no corresponding increase in the excretion of carbonic acid. One must, therefore, assume that both factors in the respiration are, within certain limits, independent of each other; that muscle can take up a very large supply of oxygen and conceal it for a long time in its plasma without excreting it in the form of carbonic acid. The absorption of oxygen increases in active muscle with the temperature.

GOLDZIEHER ON IMPLANTATIONS IN THE ANTERIOR CHAMBER OF THE EYE.—W. Goldzieher (*Archiv für Experiment. Pathol. und Pharmac.*, 1874, Band xi., abstract in *Centralblatt für die Med. Wissenschaften*, no. 52) has adopted a method similar to that of Zielenko, who placed in the lymph-sacs of frogs different tissues, and observed the changes they underwent. The author used the anterior chamber of the eye of rabbits, and placed in it conjunctiva, nasal mucous membrane, nerves, cornea, etc.; the advantage being that the coarser changes could be continually observed and controlled through the cornea, which almost always remained transparent. He found that the bodies introduced very soon became attached and vascular, either by the iris or by the conjunctiva, by means of the cicatrix in the limbus corneæ. They became either encapsuled, the iris encircling them like folds, whereby cysts might be formed (so called epidermoid iris-cysts), or they increased by sticking to some structure in the interior of the eye, and either shrivelled or developed further, either in all parts, or only in one (epithelium of the nasal mucous membrane). The proliferating epithelial cells did not behave in the foreign tissues as irregularly developing tissues, which destroyed the texture of adjoining parts, but conducted themselves after their physiological type.

FELTZ AND RITTER ON THE INFLUENCE OF THE INJECTION OF BILE ON THE ORGANISM.—V. Feltz and E. Ritter (*Comptes Rendus*, lxxviii. 1874), injected fresh bile into the veins, and observed the following phenomena. 1. Tetaniform convulsions occurred, which were followed by coma, insensibility and death from a large dose. 2. There were slight decrease of the pulse, and diminution of the bodily temperature by 1° or 2° Cent. 3. There were pronounced salivation, vomiting of biliary masses, and bilious, sometimes bloody diarrhœa. 4. The blood showed fat-granules, increase of fat, and cholesterin. The blood-corpuscles showed a tendency to flow together. The quantity of oxygen was diminished, and that of carbonic acid increased. On shaking with oxygen, the blood did not absorb so much of it as normal blood. 5. The quantity of urine was increased, and only with very large doses of bile did it contain albumen and bile-pigment; on the contrary, it contained regularly a substance which had many resemblances to indican. Only when the animal died rapidly, was the urine blood-coloured from dissolved blood-colouring matter.

PURVES ON THE PLACE WHERE THE WHITE BLOOD-CORPUSCLES WANDER OUT OF THE VESSELS. L. Purves (*Onderzoekingen gedaan in het Physiol. Labor., Utrecht*, 1873, iii.) to investigate the place where the white blood-corpuscles pass through the wall of the vessel in Cohnheim's experiment on inflammation, injected a solution of silver into the vessels of a frog prepared after the manner of Cohnheim. The colourless corpuscles, without exception, wander out between the boundaries of the epithelioid cells. They never pass through the substance or through the nucleus of an epithelioid cell. According to the author, the red-corpuscles only pass out by those channels which have been previously made for them by the colourless corpuscles. The author found no stomata of any kind on the epithelium of the vessels.

WM. STIRLING, D.Sc., M.B.

GOLDING BIRD ON IMBEDDING IN ELDER-PITH FOR CUTTING SECTIONS.—C. H. Golding Bird (*Quarterly Journal of Microscopic Science*, January, 1875) finds elder-pith, much used in former years, a very favourable imbedding material for cutting sections. The principle recommended by the author is the same as that adopted by Ranvier, viz., the swelling of the parenchymatous tissue of the dried pith in the presence of moisture. The object to be cut is placed in elder pith, and this is fitted into Ranvier's microtome. If water be poured upon it, the pith will have swollen in a very short time sufficiently to hold the specimen firmly in its place. 'As to the quality of the sections obtained, I am almost converted,' says the author, 'to the belief that it matters but little, except in one or two cases, how or in what one imbeds, but that a good result is rather owing to the skill and ingenuity of the manipulator in each particular case. Every one upholds, naturally, the way in which he himself is accustomed to work, and rightly so.'

E. KLEIN.

RECENT PAPERS.

On the Phenomena produced in Animals by the Transfusion of Heterogeneous Blood, and the Physiological Explanation. By Dr. Landois. (*Centralblatt für die Medicin. Wissenschaften*, January 2.)

On the Origin of Sex. By Dr. Whittaker. (*The Cincinnati Clinic*.)

Effects of Lightning-Stroke on the Nervous System. By Dr. Munson. (*Archives of Electrology and Neurology*, November, 1874.)

The Relations of the Nervous System to Diseases of the Skin. By Dr. Duncan Bulkley. (*Ibid.*)

The Duty of Vivisection in the Study of Neuro-Physiology and Electro-Physiology. (*Ibid.*)

On the Effects produced by Faradisation of the Ventricles of the Heart in the Dog. By M. Vulpian. (*Gazette Médicale de Paris*, January 9.)

Researches on the Zygomatic Fossa. By A. M. Chiais. (*Montpellier Medical*, December, 1874.)

MEDICINE.

JULIUSBURGER ON GASTRO-PULMONARY FISTULA FROM A PERFORATING ULCER OF THE STOMACH.—Dr. P. Juliusburger, of Breslau, narrates this case in no. 51 of the *Berliner Klinische Wochenschrift* (December 21, 1874). The patient, aged forty-three, was a confectioner, and steward of a friendly society. His father and brother died with symptoms of phthisis. For more than a year he had been treated for dyspepsia; he had suffered for some months from bronchial catarrh; and during last winter he had several losses of blood *per anum*, in consequence of which he was very anæmic. Anorexia, weight and fulness at the epigastrium, particularly after meals, eructations, severe cardialgia, irregular defecation, colic and flatulence were the principal gastric symptoms. No vomiting had been noted. He took little medicine, from an idea that the bleedings were salutary! but he adhered pretty strictly to the diet prescribed. From his appearance, family history, and chronic dyspepsia, tuberculosis was suspected. There was, however, no percussion-dulness over either lung, but under the right clavicle expiration was harsh and prolonged, whilst above it there were cooing and whistling râles. The second sound of the pulmonary artery was intensified. Change of air was prescribed, but ere he left a catastrophe occurred on June 9, which led to his death on September 7. Unknown to his medical attendant, he had for some days been taking Ems water (from the Krähnen spring) with whey. Hæmatemesis had also been going on for some days. On June 9, during defecation, he was suddenly taken with violent pain in the stomach, and symptoms of abdominal collapse. The pain proceeded from the ileo-cæcal region, extended all over the right half of the abdomen, and upwards over the epigastrium and liver to the right shoulder. The epigastric and right hypochondriac regions were distended, forming an elongated tumour which overlapped his thorax; the swelling, in a less marked form, extended to the ileo-cæcal region. He was ordered one-sixth of a grain of morphia every hour; ice externally, and ice to suck. Next day there was some reaction. The swelling in the gastro-hepatic region had increased, while just above the navel there was a fork-like furrow, reaching across the abdomen, below which the lower belly was distended, though not so greatly as the upper portion; it was also less tender. The percussion note was tympanic over the whole abdomen, and on the right side as high as the fourth ribs, and thence even to the right axilla; the normal liver-dulness was quite wanting. On the third day the bowels acted spontaneously, his pain was much relieved, and wine, milk, and broth were allowed him. On the fourth day, the rest of the belly being soft and flat, the isolated longitudinal swelling of the

epigastric region became still more visible. Pulse, 96-100; temp., 101.3°; respirations, now costo-abdominal, 28 per minute. Percussion of the right thorax posteriorly gave no abnormal sound, except that the liver-dulness was a mere narrow stripe. He was now allowed to use a sofa for a short time daily. On the twelfth day he lost much blood *per anum*, and was again collapsed. From this he was restored by stimulants; and with three-grain doses of tannin, followed by bark and wine, he improved so much that he was soon allowed to sit out of doors, and gained some colour; his pulse and temperature still kept high, with slight evening exacerbations. This state of things lasted till July 5, when he had a severe rigor, followed by expectoration of vast quantities of fetid, partly fluid, partly purulent, and partly solid matter; the latter in brown masses, mixed with blood. At the same time similar masses passed *per anum*. He was found in bed, sitting up, with full frequent pulse, rather quicker respiration than before; free from pain, but unable to lie down, every attempt to do so being followed by belching of fetid matter, and the expectoration of these masses. Inspection showed the epigastrium much flattened, whilst palpation disclosed a flat resistant tumour, about the width of the hand, which seemed clearly to be the left lobe of the liver. Below the edge of the ribs on the right side there was a narrow strip of dulness, over which the tympanic note again occurred as it had been. Behind, from the liver-dulness to the spine of the scapula upwards, and laterally to the axilla, there was a flattened percussion-note, very weak pectoral fremitus; the breath-sounds were faint, almost inaudible; but near the vertebræ, and in the axilla, bronchial breathing was heard. Elsewhere there were catarrhal sounds. At night this posterior dulness in the right thorax was changed for a tympanic note, and breath-sounds were clearly heard, mingled with moist râles of medium size. His appetite was good. There was no special increase of fever. One-sixth of a grain of morphia procured no sleep, for towards 1 A.M. the expectoration began again. The percussion-note was dull once more over posterior part of the right lung—whilst at night it was again tympanic. These changes went on from day to day, varying as the percussion was performed before, or after the expectoration—which itself was usually preceded by distension of the epigastric region. Sometimes the expectoration followed pressure on the patient's back, either from his lying down, or from the flat hand pressing there. Examination of the sputa showed pus-cells, and masses or plugs of fat, to be the chief constituents; the reaction varied, being acid at one time, alkaline at another. These physical signs led to the conclusion that the stomach and right lung communicated with each other, and the presence of portions of food in the sputa one day confirmed this. The patient some hours previously had supped on farinaceous food, and such quantities of this were expectorated, as forbade belief that it could have merely adhered to the mouth or pharynx. Tonics, whey, and morphia at night were the treatment. For some weeks there was little change. The sputa were coughed up several times a day; similar masses, mixed with blood, passed in great quantity *per anum*. The long epigastric tumour gradually extended into the right hypochondrium, giving a dull percussion-note for about a handbreadth. Blood sometimes appeared in small quantity in the sputa. Fever was slight. The appetite was good, but the patient grew

thinner. Sleep was only obtained by morphia, of which nearly a grain was required every night. The bronchial symptoms at both apices were intensified. In the twelfth week the expectoration ceased. Expectorants did not relieve—he lost appetite, had hectic sweats and high fever at night. Rigors which shook the bed occurred almost daily, indicating pyæmic processes; the apex of the right lung solidified, and finally, at the end of the twelfth week, the almost skeleton-like patient passed away in a comatose condition, with signs of œdema of the lungs.

The *post mortem* examination, fourteen hours afterwards, showed the pylorus adherent to the suspensory ligament of the liver. In the posterior wall of this part of the stomach there was an opening about the size of a sixpence, above which was a cavity as large as a fist, containing air and brownish pus. It extended into the right half of the thorax; was bounded on the right and in front by the thoracic wall, below by the liver, on the left by the stomach, and above and behind by the diaphragm. The latter was fairly adherent to the pleura and right lung, and had an opening almost as big as that in the wall of the stomach. Corresponding to this hole the lung-tissue was destroyed, and allowed the openings of several bronchi to be seen, and these communicated with the right bronchus and trachea. There were disseminated tubercles in both lungs, the right apex was infiltrated with tubercles, and had some small cavities. The liver was moderately enlarged and fatty. The spleen had almost countless pyæmic infarctions disseminated through it. The heart, kidneys, and great vessels showed nothing abnormal. In the stomach there was another ulcer, almost as large as the first, and nearly opposite to it in the pyloric portion, in the cardiac part and fundus, six to ten scars of small ulcers healed up, and two more large fresh ulcers in the greater curvature, looking as if just punched out. No further examination of the body was made for want of light.

Although pathologists may be unwilling to admit this, it seems probable that these ulcers originated in tuberculous disease. How else shall we explain the numerous ulcers? He was no drunkard, took no corrosive substances, and had no disease of the circulatory organs. It seems probable that his inherited diathesis gave rise to the disease in his stomach.

W. BATHURST WOODMAN, M.D.

HAUKE ON THE PNEUMATIC CUIRASS.—Hauke (*Wiener Medizinische Presse*, nos. 34 and 38, 1874, and *Centralblatt für die Medicinischen Wissenschaften*, no. 58, 1874) has invented two kinds of cuirass in order to rarefy the air around the thorax. The one apparatus consists of a convex thin sheet of iron, provided at its edges with caoutchouc tubes filled with air. It is made to encase the thorax, and to leave uncovered only the shoulders and the region corresponding to the vertebral column. The other is made of cane, and is covered with air-tight cloth in the shape of a shirt. If applied to the body, the apparatus encloses the thorax, the neck, the arms, and the upper portion of the abdomen. In the space thus created around the thorax, the air may be rarefied by means of some contrivance, either with each inspiration or permanently. For this last purpose, however, the cane apparatus must be used, because the other would cause pain by the continued pressure. By rarefying the air around the thorax, Hauke intends to equilibrate the retractile force of the lungs, and, if the rarefaction be increased to a certain

degree, to give preponderance to the pressure of the intrapulmonary air. In this way, the lungs may be expanded and movements produced similar to those of inspiration. From these, however, those movements differ in so far as the diaphragm is relaxed, instead of being contracted, and is pushed upwards into the thoracic cavity.

Hitherto Hauke experimented only upon himself. He found that the rarefaction of the air around the thorax of from 1.36—1.24 atmosphere, energetically excites to deep inspirations. If the ordinary atmospheric pressure be re-established, the dilated thorax rapidly returns to its former position. Expiration is thereby facilitated. Respiration carried on in this way gives rise to a sensation of great ease and comfort; but this does not take place if the rarefaction be permanent.

This mode of treatment has not yet been applied in practice. Hauke thinks that the rhythmical application of the apparatus is indicated in cases of insufficient inspiration. It is preferable to the inhalation of compressed air, because it allows the filling of the vessels of the lungs. The cases most suitable are (1) the asphyxia of the new-born; (2) the congenital or acquired atelectasis; (3) the inspiratory dyspnoea of capillary bronchitis; and (4) rickety affections of the thorax, in order to prevent or to cure the deformities due to the collapse of the lung.

The continual rarefaction is said to be indicated in cases of overfilling of the systemic veins, on account of the aspiratory force exerted by the rarefied air upon the blood returning to the heart.

I. B. BERKART, M.D.

PEPPER ON THE LOCAL TREATMENT OF PULMONARY CAVITIES BY INJECTIONS THROUGH THE CHEST-WALLS.—After a full historical account of this treatment, Dr. W. Pepper states (*American Journal of the Medical Sciences*, October, 1874) that, by evacuating the cavity, it considerably lessens cough, and thus favours rest of the diseased lung. It enables us also to disinfect the purulent contents, and to stimulate the walls of the cavity. Dr. Pepper thinks the effects on the walls of the cavity are of the most importance. Iodine and carbolic injections have been used. Dr. Pepper has only employed weak solutions of iodine. He does not make a permanent communication with the cavity, but on each injection introduces a fine cannula. This treatment does not evacuate the cavity; it only modifies the condition of the walls, and lessens or removes the pyogenic membrane. At present, he has only punctured through the first, second, or third interspace, usually in the line of the nipple.

He uses an apparatus like a large hypodermic syringe capable of holding twenty-five minims. He introduces the needle from one and a-half to two inches. He employs dilute compound solution of iodine, at first Miv to Zj , now he uses Mxij to Zj , and of this solution he uses Mxxv for each injection once a week.

He shows that the operation can be performed without pain or any bad consequences, though he disadvises its use when much healthy lung lies between the cavity and the chest-walls.

He has made over seventy punctures in all. Dr. Pepper concludes that, whilst the operation can be performed without risk, it lessens expectoration and quiets cough, and thereby greatly improves

health. He believes that physical examination justifies the conclusion that this treatment causes contraction and cicatrization of the cavity.

SYDNEY RINGER, M.D.

RECENT PAPERS.

- On Chlorosis in Young Girls. By M. Bouchut. (*Le Mouvement Médical*, December 19.)
 Albuminuria: a Sequela of Small-Pox. By Samson Gemmell, M.B. (*Glasgow Medical Journal*, October, 1874.)
 The Local Treatment of Diseases of the Respiratory Organs. By Dr. S. Domanski. (*Berliner Klinische Wochenschrift*, January 4, 1875.)
 Note on Glossitis a frigore. By Dr. Peltier. (*Le Progrès Médical*, January 9, 1875.)
 Chronic Alcoholism. By Dr. Beard. (*Archives of Electrology and Neurology*, November, 1874.)
 The Prophylaxis of Pulmonary Consumption. By Dr. Pietra-Santa. (*L'Union Médicale*, January 9, 1875.)
 Bronchial Pemphigus. By M. J. Castan. (*Montpellier Médical*, December, 1874.)
 On an Epidemic of Contagious Sore Throat, passing into Scarlet Fever. By Dr. Routh. (*Medical Press and Circular*, January 13.)
 Contribution to the History of Pneumothorax of Tubercular Origin. By Dr. Bernheim. (*Révue Médicale de l'Est*, January, 1875.)

SURGERY.

PARONA ON THE TREATMENT OF VARIX BY INJECTION OF HYDRATE OF CHLORAL.—Dr. Parona, in a two years' report on the surgical practice in the hospital at Novara, describes (*Gazzetta Medica Italiana-Lombardia*, December 12, 1874) ten cases of varix of the leg treated by the injection of hydrate of chloral.

Case 1 was that of a man named Giovanni Masseroni, aged seventy, a gardener, who at the age of twenty had varicose veins to such an extent as to exempt him from military service. Ulceration and other complications of varix began when he was forty years old. When he came into hospital, the right saphena vein was only slightly varicose; the left was varicose up to its junction with the femoral vein. There was an ulcer on the leg. After some days of rest, a solution of hydrate of chloral of the strength recommended by Porta (a gramme for each injection) was injected at several points in the course of the vein. The operation was attended and followed for a short time by smarting; coagula were immediately formed; there was no local nor general disturbance; nor were there any symptoms of hypnotism, although several grammes were injected. Three injections were made at other points five days afterwards. The patient left the hospital twenty-two days after his admission in a very satisfactory state; he said that his leg felt lighter and was quite painless. The varices were greatly reduced and indurated.

Case 2. A man named Francesco Petracchi, aged forty-five, had varix of both internal saphena veins. Two injections of hydrate of chloral were made in the left leg and three in the right—three grammes in all being used. There was some threatening of phlebitis in the left leg; this was, however, soon subdued by cold applications and rest, and, at the end of fourteen days, the veins were converted into hardened painless cords. Three months afterwards, the man remained in as satisfactory a state as when he left the hospital.

Case 3. Pietro Fratta, aged forty-eight, was admitted with circumscribed varicosity of the upper and inner third of the right leg; both the internal

saphena vein and its collateral branches were enlarged, and there were two ulcers on the leg. The patient presented all the signs of a high degree of paludal cachexia. Three injections of hydrate of chloral were made into the dilated veins; obliteration took place slowly. The ulcers, however, showed no disposition to heal; their edges became tumid and partially sloughed; erysipelas of the limb, preceded by rigors, set in; and it was not until after repeated doses of quinine and prolonged tonic medication that the patient was able to leave the hospital. The cure remained permanent many months afterwards.

Case 4. Carlo Comello, aged sixty-eight, had varicose veins of the whole right leg, as far down as the inner condyle, with five ulcers, and an eczematous state of the skin. Five injections were made on two occasions. The result was successful, the veins for the most part remaining pervious. Seven months afterwards, he reported that he had been able to follow his daily calling as an agricultural labourer, and to walk long distances without inconvenience. The veins were rather more dilated than when he left the hospital.

Case 5. Battista Chierico, aged eighteen, was admitted with varicose veins of the left leg, accompanied with an ulcer. Three injections of hydrate of chloral were made. There was a little local reaction, which was subdued by cold applications. The patient left the hospital at the end of twenty days, with the veins obliterated and the ulcer cicatrised.

Case 6. Francesca Lommi, aged thirty-five, was admitted with varices and an ulcer of the left leg. The local troubles produced thereby had obliged her to keep her bed from time to time for seven years. After four injections of hydrate of chloral, the varicosities disappeared, and the ulcer healed rapidly. The patient left the hospital, and, when last heard of, was able to stand all day, and to walk long distances without the least inconvenience.

Case 7. Catterina Urietti, aged forty-six, had suffered for some time from varix of the right leg, and had had ulcers for about a year before her admission into hospital. Three injections of hydrate of chloral were made; one into the internal saphena vein just below the knee; another into the anastomosing branch between the external and internal saphena veins at the upper and anterior part of the leg; and the third into a varicose dilatation just above the inner ankle. The first injection at once produced coagulation without any consecutive accident; the second was followed by coagulation, but produced a superficial blackish eschar of the size of a lentil, which was detached in about twenty days without giving rise to any accident; the third did not produce complete coagulation, but only contraction of the venous sac. On repeating the injection at the same point a few days later, complete coagulation followed. The ulcer cicatrised very slowly. Dr. Parona has had this woman under constant observation for nearly a year; her condition remains perfectly satisfactory.

Case 8. Epifanio Torsani, aged sixty-four, was admitted with a large varicose ulcer of the lower third of the right leg. Injection was made into the dilated vein, at three points above the ulcer. The reaction was very slight; coagulation was perfect; and there was no hypnotic action. The ulcer was healed in forty days; and the patient left the hospital without a trace of varix.

Case 9. Pietro Cucchetti, aged fifty-one, had had varix of the right leg from the age of twenty. For some years he had suffered from ulcers, erythema, and swelling of the leg, which occasionally disabled him from work for many months together. The internal saphena vein from the upper part of the thigh to the knee was as large as a little finger; and beneath the knee, on the leg, were two varicose nodules, with large varicose veins between them. Injections were made on two occasions, and were followed by cicatrization. The patient left the hospital, contrary to Dr. Parona's advice, before the treatment was completed; the lower varicose nodule still remaining. Circumscribed phlebitis affected him some time afterwards; but, when last heard of, the veins were in a much less dilated state than before the injections, and the patient was able to work all day in the fields.

Case 10. Giovanni Caccia, aged thirty-five, a country labourer, was admitted with varicose ulcer of the right leg, and varix of the internal saphena and collateral veins. The patient presented all the signs of paludal cachexia. After the oedema of the limb had been subdued and the patient's general condition improved, three injections of hydrate of chloral were made into the most dilated portions of the veins. The operation was followed for some hours by smarting, and for some days the patient had pain and swelling in the course of the veins. Coagulation and induration took place; the pain and swelling disappeared, and the ulcer healed. When, however, the patient was about to leave the hospital, he was suddenly seized with rigors; the leg became painful, erysipelas set in, and the ulcer reopened. The patient's pulse increased to 130, and his temperature to 41° Cent. (105.8° Fahr.); the erysipelas extended to the thigh and the back; the tongue became dry; the patient had profuse sweating; there was swelling of the left wrist and right shoulder; and death followed. There were no indications of thrombosis. At the necropsy, pus was found in the two joints that had been swollen, but there were no visceral abscesses. Suppurative periphlebitis was found in the right leg. In the lumen of the veins, both superficial and intramuscular, were long masses of fibrin dyed with hæmatin; and where the injection had been made, the walls of the veins were contracted and thickened, and the lining membrane was wrinkled and closely adherent to the clots.

Dr. Parona draws the following conclusions from his cases and from those which have been elsewhere published. 1. The treatment of varix by hydrate of chloral has, up to the present time, been sufficiently harmless. 2. In the majority of cases, the result of the operation is permanent and complete closure of the varicose veins, with an insignificant amount of reaction. 3. If a coagulum be not formed, the operation may be repeated in a few days without inconvenience. 4. The operation is very rarely followed by phlebitis, suppuration, ulceration, or the escape of coagula. 5. Sloughing of the skin on the point of puncture occurs rarely, and is not severe; it depends on want of skill or of care on the part of the operator. 6. The operation is rather painful, and the ulcers generally cicatrise rapidly after the veins have become obliterated.

A. HENRY, M.D.

MACKENZIE ON THE TREATMENT OF BRONCHOCELE.—The *Birmingham Medical Review* for January 1875 (no. xiii.), contains an article on this

subject by Dr. Morell Mackenzie, with seventeen life-like illustrations from photographs. This department of practice has, for the most part, been relegated to surgeons, although some forms of the disease more naturally come to a physician on account of the peculiar symptoms they set up, or by which they are accompanied. The candid student of history will hardly accuse British surgeons of any excess of zeal in this matter, since nearly all the operations and new methods of treatment have been American or continental; whilst, with some few exceptions, the various forms of this affection, however distinct in their nature, were all jumbled together in most of our surgical text-books, prior to the publication of Dr. Mackenzie's paper in the *Lancet* (May 4, 1872). It will scarcely be possible much longer so to confound things that differ. For clinical purposes, the following classification of goitre is very convenient:—1. Simple or adenoid; 2. Fibrous; 3. Cystic; 4. Colloid; 5. Vascular. The disease may present the characteristic features of any one of the types referred to, or many of the different varieties may be associated together in varying degrees, and in different situations of the gland. This fact will be readily understood when it is borne in mind that the various kinds of bronchocele are generally different stages of development—sometimes progressive, sometimes retrograde—of the simple hypertrophied gland. Hence there are certain sub-varieties dependent on the combination of two different forms of disease, or on the special arrangement of the elements of a single variety. The principal of these are (a) fibro-cystic, a term which requires no explanation; and (b) fibro-nodular, a modification of the ordinary fibrous bronchocele, in which the fibrous structure has undergone retrograde development of a cirrhotic character. Of 447 cases (366 hospital, 81 private patients) 104 were adenoid, 187 fibrous, 23 colloid, 76 cystic, 26 fibro-cystic, 29 fibro-nodular, and 2 vascular. In the first, or simple form (*struma follicularis mollis* of Virchow) which sometimes disappears spontaneously when sporadic, Dr. Mackenzie does not rely upon iodine alone, although this is commonly regarded as a specific in endemic cases. He says that simple hypertrophy occurring in weak anæmic girls is most effectively treated by iron and hygienic measures; whilst cases not yielding to internal treatment may almost invariably be cured by counter-irritation, or internal and external treatment combined. The liquor epispasticus B. P., applied about twice a week, on alternate sides of the throat, is preferred by him to biniodide of mercury ointment. If the latter be used at all, it should be strong. Want of direct sunlight appears to render it less useful here than in India. Electrolysis is often very useful, a mode of treatment introduced by Dr. Althaus. The ointments of plumbic and potassic iodides are of little use *per se*. The 104 cases show the following results of treatment. Cured by the internal use of iodine solely, twenty-one; in nineteen cases iodine pigment was applied as well, thirteen of these were cured, six relieved. Of eleven treated by pigment alone five were cured, two relieved, four were lost sight of. Of thirteen cases treated by electrolysis nine were cured, in two the goitre was diminished; two which resisted treatment were subsequently cured by subcutaneous injections of iodine. Nine other cases were cured by this latter method of treatment. Fibrous bronchocele may be treated by hypodermic injections of iodine, by setons, or by caustic darts. Dr. Mackenzie has

abandoned all these methods except the last, because it does not require the patient to give up his ordinary occupation for a single day. Out of seventy-three cases thus treated, fifty-nine were cured, nine relieved, two left off attending, and only two were unbenefited. Reference is made to papers by Dr. Wood, Dr. Luton, of Rheims, Lücke, of Berne, Alquié, of Montpellier, Bonchucourt, Schwalbe, Hardy, Stoerk, and Lévêque, on various means and methods of injection. There are some useful hints as to the syringe to be employed. In the cases given above, the tinct. iodi B.P. (one in twenty) was used. Subsequently simple alcohol, or iodine in alcohol of 90 per cent. (one in twelve), and saturated solution of iodide of potassium, as used by Dr. Bertin, have been employed. With very strong solutions only a few drops should be used; other precautions are mentioned in the paper; ether spray should precede. No bad effect has followed this method in either Dr. Mackenzie's practice or that of Luton, Lücke, Schwalbe, Stoerk, or other physicians. Several illustrative cases are appended. Cystic bronchocele is treated by our author with solution of perchloride of iron—the fluid being left some hours in the cyst, sometimes after a preliminary tapping, which should never be complete. Of fifty-nine cases which submitted to treatment fifty-eight were cured, and one died from the entrance of air into a vein. Dr. Mackenzie now uses a syringe devised to prevent the entrance of air. The duration of treatment is from three weeks to four months, six to eight weeks being a usual time. The following are his conclusions (in substance not in words). 1. Cysts as large as a hen's egg should always be actively treated; so should smaller cysts if they cause serious dyspnoea or dysphagia. The best mode of treatment is that which converts the cyst into a chronic abscess; this is best done by ferric perchloride, to guard against hæmorrhage. Iodine injections in this form often cause sloughing. This treatment of cysts is not devoid of risk from profuse suppuration; and in common with all operations in the neck, there is a danger of air entering a vein, and causing sudden death. In pure cystic goitre this risk is, however, very small. Several cases in illustration are appended to this portion of the article.

[The reporter thinks the profession greatly indebted to Dr. Mackenzie, not only for much information on these little studied subjects, but for the candour with which he has recorded his cases, and for the careful attention to detail which they display.—*Rep.*]

W. BATHURST WOODMAN, M.D.

RECENT PAPERS.

- Contributions to the Discussion of Surgical Questions of the Day. 1. Transfusion of Blood. By Dr. Billroth. (*Wiener Medizin. Wochenschrift*, January 2, 1875.)
Contributions on Lithotomy. By Dr. Dittel (continuation of a series). (*Wiener Medizinische Wochenschrift*, January 2, 1875.)
Pott's Disease. By M. Charcot. (*Gazette des Hôpitaux*, December 15.)
Biennial Record of Clinical Surgery (continued). By Dr. F. Parona. (*Gazetta Medica Italiana-Lombardia*, January 2, 1875.)
A Case of Osteitis assuming a Neuralgic Form. By J. M. Gosselin. (*Gazette des Hôpitaux*, December 15.)
On Union by First Intention without Ligature of the Vessels after Extirpation of Mammary Tumours, etc. By Dr. Vibert. (*Lyon Médical*, December 20.)
On Antiseptic Dressings. By M. E. Labbé. (*Journal de Thérapeutique*, January 10, 1874.)

- On Amygdalotomy: Illustrative Cases in Electro-Surgery. By Dr. Hutchinson. (*Boston Medical and Surgical Journal*, December 24, 1874.)
- Cases of Hydrocele: Recovery under Electrolytic and Galvano-Cautic Treatment. By Dr. Frank. (*Archives of Electrology and Neurology*, November, 1874.)
- A Case of Excision of the Knee for Bony Ankylosis, with Deformity. By Dr. Thomson. (*Medical Press and Circular*, January 13.)
- Vesico-Vaginal Fistula cured by Cauterisation. By Drs. Van Wetter and Deneffe. (*Bulletin de la Société de Médecine de Gand*, December, 1874.)

BALNEOLOGY.

SALES-GIRONS ON THE NEW WINTER THERMAL ESTABLISHMENT OF DAX.—Dr. Sales-Girons writes as follows (*Thermes de Dax*, no. 5, November 20, 1874).

It was not as a place of luxury that Dax attracted me: for the English, who make the prosperity of winter stations, have not found it out. It was as a city of hot mineral waters that it charmed me. The very pavements are hot, and the atmosphere is charged with the vapour of the abundant sources. I was quite in my element, as a doctor travelling in search of a respiratory diet, when I entered the new and comfortable establishment. It is at once a perfect bath-house and hotel. The basement-story is erected over a spring of 140° , and in it a large gallery 140 yards long gives access to all the baths. In summer fresh air is made to circulate in it, but in winter it is kept, for the benefit of the patients, at a temperature of 64.4° , and it would be easy to make it warmer by opening some of the doors which open on the above-mentioned spring of 140° . On the first floor, a gallery of the same length encloses all the rooms of the visitors. The vestibule, the rooms for play and for reading, the drawing room, the dining hall, all open on the gallery, and a constant temperature of 64.4° is preserved. Including the gallery below, a patient may walk 280 yards without stirring abroad.

The moisture of the air, which can be impregnated at pleasure with the vapours of mineral waters, is graduated in accordance with hygrometers placed at different points. The gases of the sources of Dax, which are particularly rich in azote, accompany these vapours, and can be modified so as to make the air inspired contain more or less oxygen, according to the respiratory wants of the patients.

Here every application of water is to be found. The baths of mineral mud, which first gave Dax its reputation, are admirably applied in rheumatism of the joints. The latest improvements suggested by modern science are to be found here. Baths and douches of all sorts, whether of fluids or of vapours, or of gas, are all administered here at the desired temperature. Even hydrotherapy, which may appear at first sight an anomaly in a thermal establishment, can be carried out by the use of cold water, which has been laid on. Besides all this, arrangements have been made for pulverisations, which are useful in laryngeal and bronchial affections; and the sulphur-waters of Gamarde have been brought a distance of two leagues, for employment in such cases. I could not help picturing to myself, how much might be done for pulmonary patients in an institution so well arranged for winter cures. There is a constant temperature in the interior of from 59° to 68° during the cold season; tepid vapours to diffuse through this atmosphere to moisten it, nitrogen to correct its

sharpness. The locality appeared to me to be predestined for an antiphthisical abode, where all the elements of a respiratory diet have been supplied by nature from its underground workshop.

There is no town or village in France where similar advantages are to be obtained, and at present all these advantages are found combined in one of the finest establishments I have ever inspected. In the mean time Dax is unique; but when it is not able to meet the requirements of all the patients from the north, who are sure to crowd to it, doubtless similar establishments will spring up elsewhere. As a winter *maison de santé*, the Dax establishment is quite a model one in cases of rheumatism, of neuralgia, of bronchial catarrh, and of more serious pulmonary affections, that are looking forward to regular mineral-water treatment next summer.

[This enthusiastic account of Dax comes from Dr. Sales-Girons, well known for his special treatment of various bronchial, laryngeal, and pulmonary affections at Pierrefonds. One who has invented various improvements in the use of the sulphur-waters of that place, must have examined Dax with a critical eye. Dax is undoubtedly well worthy of the attention of those who regard a regulated winter temperature as of primary importance in the treatment of affections of the respiratory organs. There are indeed warm chambers and inhaling rooms at two Pyrenean winter stations, Amélie and Le Vernet. But they are on comparatively quite a small scale, and are not very inviting.]

Dax itself is an uninteresting, dull old town, in a flat country. It has the remains of some Roman walls; and the Romans were attracted to it by the hot water of a temperature of about 140° , which issues in surprising abundance. The winter climate of Dax is a shade warmer than that of Pau, from which place it is distant about two hours by train.

The new establishment supplies a specimen of the sort of thing which Dr. Daubeny and Dr. B. W. Richardson recommended for Bath. Such a plan is perfectly feasible. The waters of that place are, if not so hot or quite so abundant as those of Dax, still sufficiently so. They contain plenty of nitrogen, and in mineral constituents are considerably superior to those of the other place. We hear of a master of the ceremonies being appointed to Bath. Surely its Corporation might take more active measures, and endeavour in a variety of ways to attract patients to those waters, which, although they have never been quite deserted, have been strangely neglected during the greater part of this century. See an excellent account of a French doctor's recent experience of Bath by Dr. Tilt, in the *Lancet* of October 24.—*Tr.*] J. MACPHERSON, M.D.

REVIEWS.

Cholera: How to Prevent and Resist it. Translated from the German of PROFESSOR VON PETTENKOFER, with Introduction, Notes, and a Report on the Cholera Conference of Vienna, by THOMAS WHITESIDE HIME, B.A., M.B., etc., Lecturer on Obstetric Medicine and Diseases of Women, Sheffield. London: Baillière & Co., 1875.

It may fairly be asserted that the science of medicine is being rapidly rescued from the idolatry of theory and vague speculation, and that it, like other branches, is being illuminated by the light of

experimental research. It is a subject for congratulation that so able a physicist as Professor von Pettenkofer has devoted himself to the elucidation of one of the most difficult and important questions which affect the health, and consequently the happiness of men, viz., the etiology and mode of propagation of typhoid fever and cholera. He has been thus engaged for more than twenty years, and the results of his labours are eminently deserving of attention. It is with great pleasure, therefore, that we direct attention to Dr. Hime's valuable work, which supplies a real want. We fully agree with his remark that a vast amount of light would be thrown on such questions if scientific men, though non-medical, would lend their well-trained powers of investigation to solving them. As Dr. Hime observes, 'Investigations as to the mode of propagation, the dependence on telluric and atmospheric influences, the portability, contagiousness, etc., of such diseases as typhoid fever and cholera require no previous medical training The more spies are engaged tracking our enemy the more likely will be his discovery.' Dr. Hime's introduction very lucidly treats questions connecting disease with an impure soil, which, as being frequently the *primum movens*, he regards as more immediately requiring attention even than the air. His statement that there are fifteen acres of ash-pits in Sheffield, in some parts many yards deep, is a striking illustration of the extent of soil-pollution in large towns. He adds force to these observations by a thoroughly scientific elucidation of the movements of the ground-air under and around our houses. He also explains fully the physical conditions which govern the movements of the ground-water, so as to render the apprehension of von Pettenkofer's works more simple.

The most superficial observer must have noticed the apparent capriciousness of the movements of cholera. A town which escaped invasion this year may be ravaged next year, or only a very few cases may occur. Some towns again enjoy almost complete immunity, though subject to frequent importations of the disease, and lying close by towns which suffer greatly and frequently. There must, therefore, be some abiding, though varying, cause which favours or resists outbreaks of cholera. Poverty, dirt, impure water and air, and other commonly assumed causes, are always present, and certainly have not been proved to be worse in epidemic than in healthy years.

According to Von Pettenkofer, an outbreak of epidemic cholera requires the simultaneous co-operation of three factors: (1) traffic (between healthy and infected places); (2) local and temporal disposition; (3) individual disposition as affecting the specific poison. The poison may be carried by means of soiled linen, various articles of food, excrement, etc. Transportability, however, does not imply contagion, the latter term being applied to poisons which multiply only within the body; the cholera-poison, like that of typhoid, is a miasm, *i.e.* it may be carried, but increases independently of the body. Cholera, in fact, depends far more on the locality which develops the poison than on the carrier of it. But though imported the poison will not always breed; it must find suitable local, temporal, and individual disposition. The influence of locality may be seen in the greater distribution of cholera according to river and drainage districts than to lines of traffic. Epidemic cholera is reported by the Bavarian Commission of 1854 only to have occurred in places situated

on porous ground, permeable to air and water, and in which water could be found at a moderate depth; and places situated on impermeable soil escaped, or only had isolated cases. The influence of the seasons is indubitable. Taking all the cases and deaths which occurred in Prussia from 1848 till 1860, both steadily increase from a minimum in April, reaching a maximum in September, and again declining from that time. Having analysed all conceivable influences which could produce the varying power of cholera, Von Pettenkofer observed that the variations of the ground-water alone corresponded invariably with the known course of the disease: whenever the ground-water is high cholera is low (and also typhoid fever). This correspondence has been so constantly observed that it cannot be a mere coincidence. At the end of eight years the mathematical probability that the connection was casual amounted to 36,000 to one; now it is over 1,000,000 to one, a stronger probability than we almost ever meet with in the daily events of life. The cause of this influence is not clear; Dr. Hime considers that it depends on the more active decomposition of organic matter in the ground, which is evinced by the greater development of carbonic acid in the ground-air at the seasons when typhoid and cholera are most common. Professor Von Pettenkofer courageously applied his theory to cases where the influence of the ground-water must be eliminated, as in ships, and to towns which enjoy immunity. His investigations in both directions make out a very strong case. His examination of the causes of the immunity of Lyons is a model of scientific work.

A vast amount of most valuable information on hygiene, behaviour during epidemics, disinfection, and kindred subjects, will be found in this work, which we cordially recommend to our readers, especially medical officers of health and sanitary authorities. Dr. Hime has done his work well and produced a valuable work. It is illustrated with woodcuts and a diagram. The report on the Vienna Congress is succinct, and useful.

MISCELLANY.

MEDICAL MEMBERS OF PARLIAMENT.—The medical profession is well represented in the Italian parliament, in which the last elections have placed twelve physicians and surgeons, and one accoucheur. The best known amongst them are Signori Strada, Mantegazza, Baccelli, Palasciano, Umana, and Lanza.

We learn from *Nature* that one of the large blue gum-trees (*Eucalyptus globulus*) in the temperate house at Kew is now showing bunches of fruit. These fruits are from three-quarters to an inch in diameter, and are peculiar on account of their hard woody nature, being nearly enclosed by the ligneous calyx, and opening at the apex by valves corresponding in number with the cells.

PRINCE LEOPOLD.—There is much, although not the usual, ground for anxiety, in the text of the bulletins of Prince Leopold's physicians. Hæmorrhage following typhoid fever in an ordinary case is of very evil omen; usually it implies an acute form of the enteric disease, and consequent severe perils in the ultimate results of the fever. Here, however, the fever has been light, and the patient has passed through its singularly regular stages. Prince Leopold has been all his life liable to local hæmorrhages; the hæmorrhage is an accident outside the course of the disease. Its gravity is to be measured by the extent to which it debilitates.

THE HUNTERIAN ORATION.—The oration this year in honour of John Hunter, the distinguished anatomist, will be delivered at the Royal College of Surgeons on Saturday, February 13, by Dr. F. Le Gros Clark, president of the college, and consulting surgeon to St. Thomas's Hospital.

At the annual meeting of the American Health Association, held at Philadelphia on November 10, Dr. Baker, on behalf of the State Board of Health of Michigan, presented a book of specimens of poisonous wall-paper gathered in that State by Professor R. C. Kedzie, of the Agricultural College. Several members spoke of the importance of this subject, and a committee was appointed to make further investigations. Dr. R. C. Kedzie was appointed a member of this committee.

ALCOHOLIC MANIA.—This disease is said to have increased in France to an alarming extent, and is thought to be traceable to the increased consumption of brandy. From a return published on the consumption of this liquor during the last forty years we find that the mean annual amount is stated to have been one litre per head in 1831, and 2.54 litres in 1869. From 1850 to 1860 the mean number of accidental deaths attributable to intoxication has increased in the proportion of 331 to 587, and the number of suicides from 240 to 664.

TREPHINING AMONGST THE CELTS.—Amongst the Celtic bone remains which were found in large quantities in the barrow at the chateau at Meudon, in 1845, M. E. Robert discovered a small round piece of bone evidently extracted from one of the temporal bones of the human skull. M. Robert is of opinion that it was taken from the skull during life to give egress to effused blood or to open an abscess; though he owns that it may have been removed after death as an amulet, according to the practice which has been observed in Mexican sepulchres of later date.

TRANSFUSION OF BLOOD.—The alienist physicians of Italy, who met in Congress at Imola on September 21, 1874, examined and discussed the transfusions performed in several asylums, and especially in that of Alexandria, under the direction of Dr. Ponza, who has reported the cases *in extenso*, together with the method of operation, in a memoir entitled *Della Transfusione del Sangue praticata negli Alienati del Manicomio di Alessandria*. Three transfusions were also performed in the presence of the Congress on the lunatics at the Asylum of Imola, and the members of it passed a resolution to the effect that transfusion of blood from the artery of a lamb to the vein of a lunatic patient, being neither difficult nor dangerous, and being capable of performance with ease and certainty, the Congress believes that the efforts of those who have entered into this new therapeutic plan of treatment should be encouraged, provided they are accompanied with a great deal of prudence, and above all, by an attentive study of the indications for and against it.

THE PROFESSION IN FRANCE.—The number of medical men in France seems to remain stationary. In 1847 there were 10,643 practitioners, or one to every 3,244 inhabitants. In 1866 there were, taking in the annexed departments, 11,525, still, by a singular coincidence, averaging one to the same number of inhabitants above cited. In 1872, when Alsace and Lorraine were lost to France, there were only 10,766 doctors, or one to each 3,353 inhabitants. This dearth of medical assistance is attracting considerable attention in France, and is likely before long, according to the *Revue Scientifique*, to become the subject of legislative interference. The unequal distribution of the available number of medical practitioners renders the situation all the more serious; for instance, in the department of the Seine there is a doctor to every 1,115 inhabitants; whilst in the department of the Morbihan there is only one to each 10,576 of the population; a scarcity of medical aid which is surpassed in the case of one department which rejoices in the medical care of one practitioner only for 11,000 people.

LEAD IN SODA AND SELTZER WATER.—At the second meeting of the North British branch of the Pharmaceutical Society of Great Britain, a paper was read by Dr. Stevenson Macadam, dealing with the question of the presence of lead in aerated waters. After having stated in the outset that so far back as 1871 his attention had been directed to this subject, and that at that time he had discovered that hard waters had a greater power of action upon lead than soft waters, Dr. Stevenson Macadam proceeded to describe the apparatus used in the manufacture of the aerated waters. Regarding the generator of the carbonic acid, he gave it as his opinion that this part of the machinery might be of lead without causing the slightest harm to the manufactured waters; while, on the other hand, the greatest care should be taken that the gas-holders should not be constructed of materials containing lead. As to the receiver, he was sorry to say that in some instances he had found that this vessel, though made of copper, contained a large quantity of bad tin, which in turn was impregnated with lead—a state of matters which of course caused contamination to the waters. So far as the piping was concerned, he held that there was no difficulty in manufacturers obtaining pure tin pipes, while he submitted that the solder used should also be free of lead ingredients. Passing on to explain a number of experiments he had made relating to the question under consideration, the speaker stated that after the fluids had been poured from bottles into lead pipes, and instantly poured back out of the pipes again, the result of analyses proved that there was in aerated waters the tenth of a grain, in lemonade the half of a grain, and in soda and potash water the twentieth part of a grain of lead to the gallon. If the liquids were allowed to remain an hour in the lead pipes, the amount of lead found would be in lemonade ten grains, in aerated waters five grains, and in soda and potash waters two grains to the gallon. In samples sent to him for analysis, Dr. Stevenson Macadam further mentioned, he had discovered the presence of lead to the extent of one grain to the gallon in lemonade, one half of a grain to the gallon in aerated waters, and one-fifth of a grain to the gallon in soda and potash waters—it having been at the same time ascertained that the oil of lemons, used largely in the manufacture of lemonade, generally contained quantities of lead owing to the fact of the vessels in which the oil was stored not being free of that metal.

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The London Medical Record.

WEDNESDAY, JANUARY 27, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE FORMATION AND TRANSFORMATION OF BONE. BY PROFESSOR R. VIRCHOW.*

(Continued from page 31.)

With regard to this kind of transformation, I have proved the fact, already established by a large number of acknowledged observers, that at the limits of the ossifying part single cells are to be met with, which project half way into the cartilage; so that, while one-half of the cell is to be regarded as a cartilage-corpuscle, the other half remains free, and is surrounded by soft intercellular substance in place of the firm intercellular substance of the cartilage. I have even seen whole rows of these cells, proliferating cartilage-elements, placed so that they were not imbedded at their ends in hyaline tissue and cartilage-corpuscles. It is now imagined that these are wandering cells; that the cartilage-cells have disappeared, and that medullary elements have taken their place.

You understand, that these questions can be solved, for the most part, only by way of interpretation. Processes of this kind cannot be brought under direct observation; you cannot see the cartilage grow and undergo changes under the microscope. But, so far as an unprejudiced opinion can entitle one to an opinion, I must still maintain that, in these circumstances, a direct melting down of the cartilage takes place, and that the same elements pass into medulla, which previously were elements of cartilage. I have even seen how such elements showed divided nuclei; and close thereon I have met with two cells in place of one; so that it seems to me proved that a true formation of marrow takes place through a gradual liberation of healthy cartilage-elements, often accompanied with proliferation: nay, that even red marrow is produced from cartilage. This is certainly in itself a very delicate distinction. You will, perhaps, ask me whether it is so important to know whether the formation of marrow takes place in this or in that way. Let it be agreed (you may say) that medullary spaces are really formed in the cartilage. But in truth it is a great difference, whether the cartilage generates the medullary spaces from itself, or whether it is worn away by an immigration of cells at certain points. We are now in the century of wandering (*Wanderjahrhundert*); and nothing can occur without a locomotion of elements. In regard to this I share in the apprehension of Herr Wolff, that the constant internal revolutions may be a little thoughtlessly applied to the whole process of bone-development. But I differ from him with respect to the assumption of

frequent metaplasas in the interior of bone; and, with special reference to the point now under consideration, my opinion still is that marrow may be produced directly from cartilage, through a melting down of the cartilage and such a change in the intercellular substance, that cells hitherto enclosed within a capsule and in a firm hyaline substance cease to be so enclosed, and come to lie in a quite soft matrix.

Another way in which the formation of medullary spaces and of medulla takes place is from the osseous tissue. With regard to this I will first observe, that the place where this kind of transformation is most usually to be seen, is the compact substance of the bone. To this process belong the phenomena which have already been long regarded as the commencement, indeed, as the ordinary mechanism, of the development of medullary spaces and, later on, of the medullary cavity. The firm cortical layer, *e.g.* of the tubular bone, first becomes porous in its inner layers; small apertures are formed in it and increase until they become medullary spaces; and at last the osseous tissue entirely disappears on their inner surface, and the marrow-substance in them becomes confluent with that of the great medullary cavity.

On this rests the view that the medullary cavity becomes widened at the expense of the former cortical substance, and that the under layers of this substance are destroyed during the growth of the bone. Pathologically, the facts in evidence of this are so distinct, that I know not how there can be any doubt as to the fact of medullary spaces being formed in the places where bone-tissue formerly existed. More difficult is the question, whether the osseous tissue itself produces marrow. As vessels are found everywhere in the compact substance, it is possible that an influence may be exercised by them in the melting down of the osseous tissue, and that an immigration of new elements takes place. In the mean time, we must first understand that the coarse fact exists, that truly compact substance may be changed into spongy. A series of pathological preparations will not only demonstrate this, but will at the same time lay another as yet little known fact clearly before our eyes.

I speak of certain syphilitic processes. I have brought with me some parallel bones (tibiae) presenting the well known syphilitic exostoses, hyperostoses, and periostoses. Syphilitic hyperostosis is a well marked example of supracortical deposit, of a kind to which those who deride apposition can generally take no exception. In hyperostosis, it is sufficiently possible to follow the old limiting line of the compact substance, and to be convinced that, although the thickness of the internal substance has doubled, the medullary cavity shows no difference at this part. Now there are cases, where the whole bone becomes so thick, especially those remarkable cases in which the whole femur undergoes this change, cases with which hitherto there has been a difficulty in dealing, because there has been hesitation in grouping them among syphilitic diseases. On the tibia, partial periostoses are often found, especially at the middle of the shaft. After these hyperostoses, in the course of a certain time and in many cases years, have become quite as firm as ivory, they become spongy exactly in the manner described. Medullary spaces are formed in their interior; the process gradually advances outwards, so that in some cases the new spongy substance nearly reaches

* Read before the Berlin Medical Society, November 25, 1874. (*Berliner Klinische Wochenschrift*, January 4 and 11.)

the surface, and scarcely any cortical matter is left. This spongiosis, *alias* osteoporosis, which makes the bones quite spongy, and which is at first not accompanied by any change in the medullary cavity, belongs essentially to the more advanced stage of syphilitic hyperostosis. It is to be understood as the result of a gradually advancing process, by which the whole bone is rendered lighter and more conveniently borne.

There is scarcely a second example where the process of the formation of medullary spaces from eburnated tissue is so evident; but there are very many analogies. I will especially call attention to the specimens of united fracture, where, in cases of distorted union, the compact substance of one of the portions of the fractured bone has encroached on the medullary cavity of the other. In a preparation of this kind, especially in fractures of the long bones, the following series from above downwards may be distinguished at a certain time; old medullary cavity, callus, compact cortical substance of the lower displaced fragment, and finally the medullary cavity of the latter. We have only to wait, to see how the compact substance undergoes change in the direction of the medullary cavity. If the individual survive, the process of osteoporosis, of which we have just spoken, begins at a later period, and increases until at last the medullary cavities divided by the fracture become united into one by the fusion together of the extensive medullary spaces.

I could quite as easily have brought before you normal bones for the demonstration of these changes; in the meantime, I thought that it would be interesting to you to prove these things for once from a pathological point of view. The same process occurs also in the normal condition. My position is this: marrow is produced at one time at the expense of cartilage, at another of osseous tissue. The marrow replaces the disappearing parts; it fills up the cavities which are produced, and thus we have no vacant spaces, but a changed condition of tissue. It is not unimportant to follow out these processes, when one is occupied with the question of the formation of the spongy substance, or when one goes on further to the consideration of the growth of bone. For my part, I am of opinion that, just as marrow may be produced from cartilage as well as from bone, so also, on the contrary, cartilage very rarely indeed, and bone very often, are formed from marrow; I believe that nothing more than a new transformation is necessary for the direct creation of new bone-tissue from marrow. If you wish for a pathological example of this, I show you here cases of osteosclerosis, where the whole mass of the marrow, even the contents of the medullary spaces, is replaced even to the minute divisions by that eburnated substance which you have already seen to be deposited by apposition on the exterior. When ossification of the marrow takes place in this way, there is first in each case, as I have shown, that thickening and increase of the intercellular substance which, with diminution of the cells, produces the intermediate form to which I have applied the name osteoid. At a later period, this thickened intercellular substance takes up lime-salts, and thus new bone-tissue is directly formed.

I have thus no difficulty, having recognised the possibility of ossification of marrow and of medullification of bone, in explaining great changes in the nature of bone, and I find no contradiction either on theoretical or on practical grounds. Therein I differ especially from Herr Wolff. He holds, not without

well weighed reasons, the opposite opinion, that the inner structure of bone preserves considerable stability, and that its later conditions agree so closely with its former, that they are only to be explained as a simple phenomenon arising, as he concludes, through interstitial growth. I cannot share in this assumption, which is again based on a one-sided examination of macerated bone, deprived of its marrow; when one has to do with bones daily, they are seen to be in fact more variable than women. An old proverb says, 'Varium et mutabile semper foemina;' but it might still better be applied to bones. I might say, that the processes which take place in bone are comparable with geological changes. They are not, as Herr Wolff expresses it, revolutions: they can scarcely be called reforms, so tedious is their progress, so long a time is it before they are complete. But this alteration of construction and absorption, or, as it has been better said, of formation and transformation, assumes a magnitude in bone of which I know no second example in the body. While at first sight bone is a highly conservative substance which apparently resists all changes, and to which we would attribute the most extreme durability in the living body, quite the contrary is the case. A part of the transformation, that which acts on the rough form of the bones, is without doubt assisted by the giant-cells (osteoclasts or myeloplaxes) which sometimes attain such an astonishing size that they occupy almost the entire field of the microscope. They fill up the holes in the disappearing bone. From the often simultaneous processes of decay and formation the most extreme changes often arise. How far these may go in each individual bone, cannot be theoretically foreseen. Herr Kölliker has taken the great trouble of examining each bone of the skeleton in animals, to find where absorption and where formation of osseous tissue takes place.

(To be concluded.)

STURGIS ON THE EXPECTATION OF LIFE IN THE SYPHILITIC.*

Dr. Sturgis premises in his remarks that the data at his command do not allow him to put forward more than an approximation to the truth. Comparing the severity of the disease at the present time with the descriptions of its ravages during the sixteenth century, he concludes that syphilis is far milder now than formerly. To estimate the mortality from syphilis, he collected the numbers of cases entered as syphilitic at four London hospitals—St. Thomas's, St. Bartholomew's, the London, and St. George's during a series of years, with their mortality. He found that forty-one out of 2,938 cases died, or nearly 1.4 per cent. But he acknowledges that these data are little trustworthy, as a large proportion of those treated for syphilis die after they have been lost sight of at the hospital. In New York and in London, the number of deaths registered from syphilis form 0.5 per cent. of the total deaths, while at Philadelphia they are reckoned at about 0.1 per cent. At the General Hospital in Vienna, Zeissl states that 1,097 syphilitic patients were treated in 1862, and that 0.7 per cent. died from syphilis. From these data he thinks an ample margin would be allowed if 2 per cent. of the deaths among the poorer classes and 1 per cent. among the richer are set down to syphilis.

* New York, 1874.

Among the causes of death the author finds 'exhaustion' most frequently assigned. By exhaustion he means syphilitic cachexia, in which the system loses all functional and vital power, and the patient dies slowly inch by inch. But there is little exact information of this kind.

Next he considers the effects of habits, age, occupation, climate, social standing, marriage or celibacy, and physique, in assisting the deteriorating influence of syphilis. Debauchery, dirt, and exposure are well known factors in producing the malignant forms of syphilis. Occupation has no marked influence. Climate, either a very hot or a very cold one, aids the development of syphilitic cachexia. A good social standing, by enabling the patient to obtain a sufficiency of the comforts of life, opposes the influence of syphilis. Marriage, by inducing people to live more regular lives, also tends to prolong life. Age has an important effect. Syphilis, if contracted after middle life, is less readily recovered from than in youth. Death from syphilis takes place far most frequently in infants; next to them in young adults; hence the author concludes that in such persons the disease has been congenital, even when the patient has reached manhood, because he supposes acquired syphilis in the majority of cases would not have had time to kill the patients before the age of thirty. The inherited taints of scrofula or tuberculosis favour the deteriorating influence of syphilis greatly.

Syphilis affects some races more severely than others. It is stated that, besides the well-known examples of the South Sea Islanders and American Indians, the Negroes in America suffer more from the ulcerative forms of syphilis than do the whites.

In considering in what way syphilis does shorten life, the author considers that death is hastened in the following modes; 1. By exhaustion; 2. By rendering its bearer more liable to other diseases, such as inflammation; 3. By favouring structural changes in viscera whereby their function is impeded or prevented.

In considering the expediency of insuring the life of a person suffering from syphilis, no one actually syphilitic should be accepted, because, though in the vast majority of those attacked the virus exhausts its influence without causing any change of structure sufficient to impede the function of any organ, so long as the influence remains the ultimate consequences cannot be foretold. Nevertheless, if the patient have passed through his syphilis, his life may be a good one to insure. But the usual duration of the disease being two years, and two years more being required for observation, the author thinks that four years from the date of his infection in ordinary cases, and three years in cases where the disease has an advanced stage, should elapse from the last symptoms before his life is accepted. For this reason, the date and character of the last symptoms should be carefully ascertained. Again, the absence or presence of a family history of tuberculosis, etc., should be carefully inquired for; but, if the syphilis have been mild, more on account of their tubercular tendency than on account of their syphilis. Patients, the subjects of inherited syphilis, should be avoided utterly, and their lives taken at no rate.

[This epitome of the current knowledge of the effect of syphilis in shortening life is acknowledged by the author to have little worth beyond showing to those seeking for precise information on the value of lives of persons who have had syphilis, that our

knowledge is very meagre and most inexact. There are three causes which render any calculations, based on the returns at present accessible, fallacious.

1. The proportion of cases of visceral syphilis to the whole number of persons who suffer from syphilis has not yet been worked out.

2. The proportion of disabling disease which has originated in syphilis, is also at present far from being determined or agreed upon.

3. The returns of the predisposing causes of all deaths are at present too imperfect for a trustworthy estimate to be drawn of the amount of mortality produced by syphilis, even when the mode of death, were it known, is one of the recognised effects of that disease.—*Rep.*]

BERKELEY HILL.

HILDEBRANDT ON THE TREATMENT OF UTERINE FIBROMA AND MYOMA BY HYPODERMIC INJECTIONS OF ERGOTINE.

Professor Hildebrandt, in the *Beiträge zur Geburtshilfe und Gynäkologie*, Band iii. Heft 2, 1874, remarks that recent literature has been lately very full of repeated trials of hypodermic injections of ergotine for the treatment of uterine tumours. As a rule, the result has not been favourable. Failure seems to have arisen chiefly from three causes: the extreme pain endured by the patient; phlegmonous inflammations and abscesses; and, in one case, poisoning. The strongest argument that has been used against it is, that those who have the hardihood to go through all the suffering have derived no benefit whatever. As to Dr. Hildebrandt himself, his experience has differed in no wise from that previously reported (*Berliner Klinische Wochenschrift*, no. 25, 1872), and he is perfectly satisfied with the results, which go to substantiate his previous assertions.

First objection: *Pain*.—The solution of ergotine now employed has 13 parts of water to 3 of the extract of ergot, and 2 of glycerine. It causes less pain than when the quantities of water and glycerine were equal. The glycerine is added to prevent the formation of fungi. With this preparation, the pain is not greater than that usually experienced with the injection of quinine. The first applications are the most painful; the region of Poupert's ligament is the most sensitive spot, and that of the umbilicus the least so. There are two distinct varieties of pain; the first an immediate one, the effect of irritation to the cellular tissue, lasting a couple of hours; the second coming on later, and continuing for about an equal time, arising from contraction of the uterus. The latter kind of pain is essential to the success of the operation; the more severe it is, the more likely the desired effect will be obtained. Wernich's solution produces this pain also. The more deeply the needle is driven, the less intense is the first variety of pain.

Second objection: *Phlegmonous inflammation and abscesses*. Dr. Hildebrandt has never seen these accidents follow his own injections, and only twice where his assistants had operated; and this out of over 1,000 hypodermic injections. These complications are believed to depend upon not inserting the needle deep enough; he passes the cannula at least two-thirds of its depth, and does not mind injecting the fluid into the muscular tissues. The skin and its mediate superficial layer of cellular tissue should be thoroughly cleared. The experience of Langenbeck,

Awater, and Löhlein, coincides with his own, both as to this method of diminishing the pain, and obviating the occurrence of abscesses.

Kleinwächter's case of *poisoning* arose from the solution being too strong, three and a half parts nearly of ergotine to two of water and two of glycerine. The symptoms were analogous to those of morphia poisoning, 'deep stupor, reduction of temperature, pulse 140.'

Against the negative results of other investigators he places the positive benefits obtained, as observed by Hermanides, Eggel, Bengelsdorf, Cl. Mayer, Keating, Hennig, and Wernich; the latter having seen the treatment check hæmorrhage in the majority of cases even after five or six injections, where it had been used solely for that object. Scanzoni writes him privately under date of March 30, 1874, that he is, as a whole, completely satisfied with his results, although he cannot flatter himself with ever having seen the entire disappearance of the tumour. He has used it in seventeen cases of large and small fibromata, the injections being persevered in for months. In one instance, a tumour midway between the navel and pubes diminished to the size of an orange after forty injections. In a case of flooding from fibroma, it was arrested after the seventh injection. Dr. Burow writes privately to say that in one case a fibroid of the size of a child's head was reduced in three months to the size of an orange, with complete cessation of menorrhagia.

Dr. Hildebrandt now gives sixteen fresh cases, which occurred either in his own practice or under his immediate supervision, and divides them into three classes:—1. Removal of the symptoms, with reduction of the tumour; 2. Marked improvement of the symptoms, with slight reduction of the tumour (these were partly his own and partly others); 3. No effect either on the symptoms or on the tumours.

I. Removal of the Symptoms, with Reduction of the Tumour.—In the first division there are five cases, in women respectively of the ages of forty-three, thirty-four, twenty-eight (single), thirty-seven, and thirty-six years. In the first case, the tumour reached to the umbilicus; the uterus was moderately thickened and elastic. At the end of fifty injections, during two months, the tumour had receded to about the size of a three-months' gravid uterus. In the second case, the fibroma, about the size of a man's fist, was felt to be in the right side of the abdomen. With fifty-five injections, during three months, the tumour had ceased to be felt through the abdominal parietes. The small subperitoneal tumours which were noted before the operation, were in no wise affected, except being more prominently felt. In the third case, that of a single woman, the tumour was nearly up to the navel; it was elastic, and distinctly demarcated from the surrounding organs. Twenty-six injections, during two months, diminished the tumour so much that its apex could be felt on a level with the pubes. At the request of the woman, the treatment was not continued. In the fourth case, the uterus was deeper than normal in the pelvis; the infravaginal portion of the cervix was not altered; the uterus was about the size of an apple. The uterine sound passed in $9\frac{1}{2}$ centimètres (about $3\frac{3}{4}$ inches). There was profuse menorrhagia. In less than two months, after sixty-two injections, the uterine sound passed in $7\frac{1}{2}$ centimètres (about 3 inches), and the body of the uterus was about the

usual size of a multipara. In the fifth case, the uterus was universally enlarged to about the size of a small apple, with a fibroma in the wall on the right side; menstruation was excessive. With fifty-five injections, at intervals of two or three days, only half of the amount of solution being employed at times, on account of the pain, the uterus remained the same; but the tumour entirely disappeared. The tumour might have been only an exudation.

II. Marked Improvement of the Symptoms with Slight Reduction of the Tumour.—Case 1. A woman (age not given) had menorrhagia of two and a half years' standing. The fundus of the uterus was about three finger-breadths above the pubes; a large fibroma was diagnosed on the right side of the uterus, extending into the cavity; it was firm and smooth on the surface. Sixty injections were made during nearly three months. At the end of the time the uterus was found to be on a level with the pubes, the menstruation had become normal, and the woman was able to move about again.

Case 2. The age of this patient is not given. The catamenia were regular as to time, but excessive in quantity and clotty. The uterus was as large as at the fourth month of gestation, anteflexed, with a subperitoneal fibroma as big as an apple in the left and upper side; an intrauterine fibroma was also believed to exist. The uterus was firmly elastic. Fifteen injections were given, one every second day; the treatment could not be borne longer on account of the suffering induced. Menstruation became normal.

Case 3. The patient, aged thirty-seven, had menorrhagia, with regularity, however, as to time. There were two uterine tumours; one subperitoneal on the left side; the other, a larger one, intramural, in the posterior wall. Both were diagnosed as fibromyomata. Daily injections were used for a month, with an interval once of four days, from some phlegmonous inflammation showing itself around the seat of puncture. The next period was better, the tumour was slightly less, and perceptibly so; it was more readily felt, and more distinctly demarcated from its uterine parenchyma.

Case 4. In this woman, aged thirty-five, there had been excessive menorrhagia for the last two years. A large fibromyoma was distinctly defined, growing in the anterior wall, expanding the uterus above the pubes to about the size of the fifth month of gestation, at the same time descending deeply into the pelvis. Forty-seven injections were made in three months. The menses, which previously appeared every fourteen days, now had an interval of twenty-one and twenty-three days; their quantity was more normal, but they were still profuse. The uterus was a little smaller.

Case 5. In this patient, thirty-four years old, the catamenia appeared for the last twelve months every three weeks; they were excessive, with expulsion of clots. A fibroma about the size of a child's fist was diagnosed in the left wall of the uterus. Forty injections were made in three months. The fibroma became one-third smaller, the menses ceased, and pregnancy occurred, which pursued a normal course.

Case 6.—A single woman, age not stated, had extremely profuse, painful menorrhagia every fourteen days, lasting eight or nine days. She had continued in this state for the last six years, and was extremely blanched. The uterus was anteflexed, broad, and extending a little above the pubes; the tumour had a firm consistence, with a smooth surface. Twenty-two injections were made during nearly two months.

She became better in every respect; the catamenia appeared with an interval of twenty-nine days, continuing seven days. The injections were continued with good effect on the hæmorrhage and benefit to the patient, without, however, producing any perceptible diminution of the tumour. This was in 1872. During the winter of 1873-74, in spite of the injections, the hæmorrhage became freer, and for the time profuse. What was the exact cause of this return of hæmorrhage the writer cannot say, but he thinks that the tumour (submucous?) might have descended, become seized in its downward course, which occasioned a temporary increase of bleeding.

Case 7.—The patient was single, aged forty-seven. The uterus was of the size of a man's head; menorrhagia was excessive, and she had leucorrhœa. Twelve injections were made. The menstruation was moderated, the periods being two days shorter. The tumour was unchanged; the fluor albus remained the same.

Case 8.—This patient was aged thirty-five, with profuse menorrhagia every three weeks, of eight or ten days' duration. The fundus was felt midway between the navel and pubes; it was globular and firmly elastic. The cervix was patulous as far as the internal os. Twenty-five injections were made. The next period lasted nine days, but was moderate in quantity. The general condition was benefited. The uterus was two finger-breadths above the pubes.

Case 9.—This woman was thirty-eight years of age; she had suffered from excessive menorrhagia for seven years. The last two years the menses had appeared every fourteen days, and there was a continuous intermediate sanguineous discharge. A slightly elastic tumour of the size of a fist was felt in the wall of the anteflexed uterus. After fourteen injections menstruation became normal, for the first time for years. The tumour was somewhat smaller. Notwithstanding every precaution, phlegmon occurred twice in this case.

III. *No Effect on Symptoms or on Tumour.*—Case 1. The patient, thirty-seven years old, had a painful tumour on the right side of the abdomen. There was no leucorrhœa. Two tumours were found in the uterus; one of the size of an apple in the anterior vault of the vagina connected with the anterior wall of the uterus; a second somewhat smaller, in form like a normal uterus, seated on the right side of the walls of the uterus. Daily injections were made for fifteen days without producing the slightest alteration on the tumour. Case 2. The uterus was of the size of a man's head, with even surface and of hard consistence. There was profuse menorrhagia with faintings. In Case 3, an old submucous fibroma was diagnosed; the patient derived not the slightest benefit from thirty injections.

Dr. Hildebrandt has again seen the first of his former published cases, after a lapse of two years. She came into the hospital with a five months' child at the breast. He examined her, and found the uterus of normal size, without a trace of any abnormalities. In Case 5 of the same series the benefit continues, but the uterus is no smaller.

He believes it is essential, in order to obtain a successful result, that the tumour should be compressed by protracted contractions of the uterine walls. As, in neoplasms of other parts of the body, absorption can be produced by prolonged instrumental compression, so also may fibromyomata be reduced in size by similar compression by a tetanically contracted uterus. Whether the action of the ergot in

causing contraction of the uterus and thereby compressing the tumour is the only way in which it operates, remains doubtful. In some cases, he is under the undoubted impression that the tumours soften before they lessen. If this softening were always present, it might be explained by supposing that the tumours, through an excess of blood in the veins, and a diminution in the arteries, as seen by direct experiment of Wernich, were gradually disintegrated. He protests against having ever maintained or believed that every fibroma of the uterus was capable of dispersion by ergotine injections.

The consistence of the tumour is all important. An old impoverished fibroma, consisting chiefly of thickened connective tissue, is as unlikely to be absorbed as a calcareous mass. If the ergot increase the hæmorrhage and discharge, it is probable that it does so by the uterine contractions causing a narrowing of the vessels. This is generally found to be the case in aged persons, the reverse, however, with the young; with the latter the tumours are vascular and loose, with muscular fibres. The most favourable cases are those which resemble in form and consistence a tense elastic cyst, which was the case with his first published case.

Energetic uterine contractions are essential to success; hence the uterus must be healthy and capable of contraction. Thin muscular walls are less fitted, as seen in some subperitoneal and submucous fibromata of large size, where the uterine walls are much expanded. In the intermediate sized tumours, there is more risk of indurations and exudations into the parenchyma than there is from thinning. The cases the least suited are those where there have been some chronic parenchymatous metritis or perimetritis and parametritis. These conditions should be first cured before attempting injection of ergot. Lastly, the most favourable position is immediately under the mucous membrane—the muscular layer that covers it being perfect. In the middle of the uterine walls, it is less favourable, but least of all when subperitoneal. In these latter kind of cases he has at times observed the tumour pushed out, and thereby rendered more prominent, by injections.

In order to promote rapid absorption of fibromyomata the following conditions are essential.

1. Their seat should be submucous.
2. Their consistence should be of a tense, elastic, muscular character.
3. The uterine walls should be healthy, contractile, not thinned by stretching, not unyielding through exudations, and the uterus free from perimetritis and parametritis.

He adds that whoever thinks he will cure the symptoms and remove the tumours by a few injections, greatly errs. At least from twenty to fifty or more are absolutely necessary to obtain favourable results.

W. C. GRIGG, M.D.

PEPSIN OF COMMERCE. BY CHARLES SYMES, PH.D.

In the spring of last year I conducted a number of experiments on commercial pepsins, with a view of ascertaining their relative digestive power, and published the results in the *Pharmaceutical Journal*, vol. iv. p. 1. I was prompted to undertake these chiefly by the fact that some medical men prescribed and valued pepsin, especially as a restorative agent, but could not get uniformly good results; whilst

others, disappointed by its uncertain action, ignored it in their practice. The problem very naturally presented itself—Does the fault lie with pepsin proper, or with the manner in which it is prepared? My conclusions pointed to the latter, for, whilst some samples were all that could be desired, others were sadly deficient in activity.

Pepsin has now become officinal, and we see the value of this at the outset, not so much on account of the process given (which is a very crude, somewhat uncertain, and wasteful one), but from the fact of having a recognised test to which any article sold under this name is amenable. Previously to this, each experimenter or manufacturer used his own test, which although perhaps good, was certainly arbitrary.

The colour of pepsin will always vary somewhat when prepared by the British Pharmacopœia process; we can, therefore, afford to dispense with this portion of the specification or description. The test given is sufficiently severe, as the best samples I have examined barely come up to its requirements; it is as follows.

‘Two grains of it with an ounce of distilled water, to which five minims of hydrochloric acid have been added, form a mixture in which 100 grains of hard boiled white of egg, in thin shavings, will dissolve on their being digested together for about four hours at a temperature of 98°.’

This is very simple, and yet for comparative results requires great care. Two grains of pepsin only being used requires exactness in weighing; the acid must be measured in a narrow tube graduated to single minims, and the temperature 98° to 100° must be kept constant during the whole of the operation; at 90° digestion goes on much more slowly, at 100° more rapidly, whilst at 120° the action of pepsin is destroyed. The maintenance of an even temperature is best accomplished by the use of a hot-air bath fitted with Benger’s improved automatic regulator, in which the expansion or contraction of the heated air operates on a column of mercury which regulates the supply of gas to the burner.

A few pharmacists themselves prepare the pepsin they dispense, but the bulk of that in general use is prepared by certain well-known manufacturers. Nine samples of such were taken, and one was carefully prepared from a fresh pig’s stomach according to the British Pharmacopœia directions. Of the ten samples, six had been prepared by this process or by some slight modification of the same; two by Scheffer’s process of precipitation with common salt, drying, and mixing with sugar of milk; and two were starchy pepsin. All were subjected to the pharmacopœial test under the same conditions and at the same time, the experiment being repeated for confirmation. Of the 100 grains of coagulated albumen digested with two grains of each sample, the following quantities remained undissolved after five hours.

No. 1	.	.	.	.	.	1½ grains.
“ 2	.	.	.	.	.	2½ ”
“ 3	.	.	.	.	.	6 ”
“ 4	.	.	.	.	.	6½ ”
“ 5	.	.	.	.	.	8 ”
“ 6	.	.	.	.	.	11 ”
“ 7	.	.	.	.	.	13 ”
“ 8	.	.	.	.	.	14½ ”
“ 9	.	.	.	.	.	18 ”
“ 10	.	.	.	.	.	46 ”

Here we have considerable discrepancy it is true, but from experience I am able to testify to a considerable improvement in the bulk of pepsin now

used as compared with two years since. I believe, also, that Nos. 1 to 6 are much more largely dispensed than the four latter; they were all pepsins from the pig; indeed, I fail to see why the British Pharmacopœia states that it might be prepared from the sheep or calf also, and yet requires it to answer to the same tests.

In conclusion, allow me to suggest the desirability on the part of the profession to prescribe *pepsina porci*; and as alcohol in any form, even when diluted, has a prejudicial influence on pepsin, the vinous solution is an undesirable form for administration. It should be given either in powders, pills, or elixir—the dose of the latter being one drachm.

BAER ON THE PROVISION FOR LUNATIC CONVICTS.

At the October meeting of the Berlin Medico-Psychological Association, Dr. Baer read a paper on the ‘Provision for Lunatic Convicts.’ The proportion of insane to others in prisons and convict settlements is variously estimated. Thus, Léut reckons that in France it is two per cent.; Gutsch, in Bruchsal, gives it as three per cent.; and Delbrück, of Halle, five per cent., the latter probably representing best those who from one mental infirmity or another require special treatment. This large percentage of insane among criminals is not surprising when one regards their descent, development, education, and conduct when at large and in prison. Of the 5,377 men and women incarcerated in Prussian prisons in 1871, there were 5,096 children left outside, part of whom would certainly descend to crime, stamped with the expression of allied crime and insanity to which fate had doomed them. Bred up as they are in crime, and leading irregular and loose lives, the time spent in prison is the only one when they remain quiet; but this again is so abnormal and so opposed to proper development, that it not only quickly evokes any latent disposition to insanity, but actually creates a predisposition to it. Many prisoners are already insane when they begin their evil career, and their punishableness is never questioned in court; among others the intellectual state is so doubtful, the causes of their irresponsibility are so hidden, that they are committed to the most complete sentence though sent to prison under modified conditions; others again exhibit such a mixture of criminal appetites and diseased impulse, that their punishment is well deserved. The conduct of all when in prison becomes sooner or later such, that their banishment from the institution is as necessary as it is desirable. Taking five per cent as the number of these persons, it appears that in Prussia, in December 1871, there were 1,100 of them. Should these persons be retained in correction-houses, where an iron discipline, unyielding obedience, absolute abnegation of will and subjection to rules must be enforced, where fear and terror must bridle the evil elements? Can the insane tolerate the heavy weight of such regimen? Even though the acute cases of mania, the utterly demented, the paralytics in the later stages, and so on, are treated in the general hospital of the prison, yet the chronic cases, the recurrent insane inmates, the epileptic and the imbecile, cause much embarrassment to the administration. They cannot always remain in the hospital, and they have no special means of occupation and diversion. In the workshops they are made sport of, whilst many are looked upon as malingerers, and

when the presence of insanity is recognised it has become incurable. For several reasons it becomes necessary to remove these persons; first, on legal grounds, all who are without doubt insane; secondly, from precautionary motives; thirdly, for reasons of economy. In making provision for this condition of things, it must be held in mind that the prisoner must be capable of immediate removal into an asylum, to effect which the number of committees must be reduced and the asylum must not be too far distant; next the asylum must be placed absolutely under the control of an alienist, and the building must have no more of the prison about it than is absolutely necessary. The ordinary asylums do not suffice for the insane of the general population, and are not adapted for insane convicts, who soon club together and require strict surveillance. Many asylum authorities have spoken against the reception of these persons, and will do so more loudly if all descriptions of insane convicts be sent to them. As in England, special asylums might be erected, but in them criminal lunatics and lunatic convicts are associated. The former class, however, is only suitable for an asylum, for they never were criminal and cannot be punished. To erect special asylums for insane convicts alone is too dear, and is unadvisable on financial grounds. The only thing left is to add to lunatic institutions or penal settlements a sufficiently large block for the insane convicts. For practical purposes a 'lunatic prison' would be most convenient. Close by the prison, and under the same administration, the 'asylum' part, under the superintendence of a physician skilled in mental diseases, must consist of two divisions—one devoted to the really sick, and provided with all the appliances of an asylum, the other set apart for the recurrent cases, imbeciles and others who require supervision and a milder discipline than the prison can afford. Every doubtful case of insanity, all insane in the widest acceptance of the term, all malingerers should be sent here, so that in the ordinary prisons the acute cases only would remain until they could be taken elsewhere.

T. CLAYE SHAW, M.D.

PATHOLOGY.

FRIEDLÄNDER, WALDENBURG, ZUELZER, ETC., ON THE INOCULATION OF TUBERCLES.—In the 47th session of the Association of Naturalists and Medical Men at Breslau, Dr. C. Friedländer, of Strasburg, made the following communication (*Berliner Klinische Wochenschrift*, November 2, 1874). Villemin and others have induced disease by introducing bits of cheesy matter from tuberculous subjects, and other foreign materials, even caoutchouc, under the skin, or into the serous cavities of animals; as well as by injecting the cheesy matter into the blood-vessels. This is called tuberculosis, and from this etiology conclusions as to tuberculosis in human beings have been freely drawn. It is quite true that there are many points of resemblance between the two affections; yet, in a clinical point of view there are some striking differences. Friedländer injected 20, 30, or 40 cubic centimetres of a fine emulsion of cheesy substance from human bodies into the external jugular vein in twelve dogs. They were quite well after the operation; the wounds healed; only one died from an accident; the eleven others continued well nourished, became fatter, had no fever nor any other

disorder, till they were killed three or four weeks after operation. In ten of these eleven there were found in the liver very numerous little nodules, gray, transparent, of the size of a pin's head; the larger ones opaque in the centre, resembling miliary tubercles. These bodies were constantly present in the spleen, not always in the lungs or kidneys, not at all in the eyes, pleura, or pia mater, only a few in the peritoneum, and those near the liver. Those which were not degenerated in the centre consisted, as shown by the microscope, of an accumulation of round cells, of tolerable size, without any intervening substance; and for the most part the periphery only was supplied with blood-vessels. The opaque centres consisted of cells which had undergone fatty degeneration. The nodules in the lungs consisted of the air-vesicles filled with cells of unmistakably epithelial type; what Buhl calls lobular foci (*Heerde*) of desquamative pneumonia. Small collections of cells were also found between the bronchi and the vessels; but nowhere any formation of nodules in the connective tissue, nothing except such interstitial formations as are common in pneumonia. The disease, thus induced by the experimenter and others in dogs and other animals, is essentially different from human miliary tuberculosis, for the latter is a severe febrile affection, and there are other organs affected beforehand in human beings which escape in dogs—for instance, the peritoneum, eye, and pia-mater. Human tubercles are never supplied with blood-vessels. Giant-cells occur in them, not in the animals experimented on. The things are then not identical, and there is probably great difference in their etiology. In the experiment with India-rubber mentioned above, if the water and India-rubber be previously put into absolute alcohol before being introduced under the skin, or into the peritoneum, the wound heals well, and no 'tubercles' are produced. The cheesy abscess, and so-called tubercles are the simple sequel of a certain kind of foulness (*Unsauberkeit*, lit. impurity). It is, therefore, not safe to draw any conclusions as to human tuberculosis from these experiments. Professor Waldenburg said, *inter alia*, that it was not true that giant-cells were never found in the inoculated tubercles. With Virchow, he believed these giant-cells were not the specific element of true tubercle. Klebs, Hering, and himself, had all seen giant-cells in inoculated tubercles. It was incorrect to say that the animals did not die of the inoculations; in fact, death was more common than recovery in his own experiments. The distribution and structure of these and human tubercles were almost identical. Waldenburg had seen animals become extremely emaciated after the inoculation, and die with large cavities in the lungs surrounded with miliary tubercles, which were also present in the pleuræ, liver, spleen, kidneys, peritoneum, etc., just as in men. The distribution doubtless varied with the site of the primary focus and its extent, and with the kind of injection. Yet, whether men or animals are concerned, the lungs and the liver suffer most. It is well to be exact and critical, but not too sceptical. Dr. Birch-Hirschfeld thought dogs bad animals for experiments; he could never develop tubercles by introducing clean India-rubber into the peritoneum. Professor Friedreich drew attention to the great need for clinical observation in these experimental cases. We are in danger of falling into old errors again about specific elements in tubercle. He had found these giant-cells in typhoid products, and in leukæmic nodules when no tubercle

was thought of. Professor Zenker said these giant-cells were sometimes present in human tubercles, sometimes absent. On this account E. Wagner gave the name of lymphadenomata, in order not to exclude nodules otherwise characteristic from being classed as tubercles. It would, perhaps, be as well to divide tubercles into giant-celled tubercles and dwarf-celled tubercles—*tuberculum giganto-cellulare*, and *tuberculum nanocellulare*. How cautious one ought to be was well shown by the case of a wether sheep which had hydatids of the lung; for, starting from the cheesy wall of the sac, the pleura was infiltrated with most minute but exquisite giant-celled tubercles—the product of infection. Yet the animal was fat, apparently healthy, and had no appearance of dying from tuberculosis. It would not do for us to totally reject all the lessons taught by experiments.

Dr. Zuelzer (of Berlin) from his own experiments and those of Gscheidlen and Traube on putrid intoxication, and the innocuity of artificially developed bacteria, could confirm the statement that various animals, dogs, rabbits, etc., could bear very well the introduction of large quantities of *Bacterium termo*. But the moment one added to these innocuous substances any putrid poison (septic material) the symptoms were entirely altered. Septic or pyæmic symptoms, often somewhat complex, immediately set in. If the matter were introduced into the lungs, then pneumonia was set up, and in the centre of these pneumonic foci there were masses of granular and staff-shaped bacteria. He found the lungs of such animals when killed, studded with tubercles, in larger or smaller numbers.

Dr. Friedländer said he had experimented on other animals besides dogs—such as guinea-pigs, rabbits, etc. He thought too much attention had been given to mere morbid anatomy and histology in these things. We must not be deceived by mere superficial or partial resemblances. Undoubtedly there are cases of miliary tuberculosis without giant-cells—only collections of small granules, so to speak, a sort of pretubercular formation. The views he had expressed were very similar to those published by Friedreich. The production of tubercles by introducing India-rubber into the abdominal cavity is closely connected with Zuelzer's experiments just related, and also with those of Burdon Sanderson.

W. BATHURST WOODMAN, M.D.

CLouston ON A FIBRINOUS SUBSTANCE IN THE PIA MATER OF THE INSANE.—Dr. Clouston has a note in the *Journal of Mental Science* (January, 1875), on the occurrence of an organised fibrinous substance formed during life in the veins of the pia mater and brain in those dying during the 'typhoid' stage of acute insanity. A female was admitted in a typhoid state, after a short attack of acute maniacal excitement. She was almost comatose, being only roused on one or two occasions during the two days she lived. The pulse was 120, very weak; temperature 103° 8'; the face and neck were dusky and flushed, apparently from vaso-motor paralysis of all the branches and capillaries of the external and internal carotids. She died comatose. At the *post mortem* examination, there were found in the veins, both small and large, of the pia mater, small white pearly-looking bodies, that appeared at first like limited white thickening of the venous coats, but were found to be masses of organised fibrinous material. In many places they were attached to thin strings of the

usual *post mortem* clot, and the difference between the two structures was very great. A microscopic examination showed this still better. Instead of the ordinary white corpuscles, caught up in the meshes of innumerable fine fibres of white *post mortem* blood-clots, those masses consisted of bodies like the white blood-corpuscles, but much larger, with distinct nuclei and nucleoli, and, instead of the fine linear fibres, there were fusiform cells cohering strongly, among which those bodies lay in regular parallel rows. The whole of the brain was dusky and congested, with much blood-crystalline matter through it. The cells of the convolutions were very granular.

Dr. Clouston has since met with the same appearances, in a less degree, in a general paralytic, who died comatose in a congestive attack.

Is it possible, he asks, that in these cases the vaso-motor paralysis and blood-stasis, which form so essential a feature in the typhoid condition of acute insanity and the congestive attacks of general paralysis, had gone on to a still further stage, when the white corpuscles began to adhere to the inside of the walls of the vessels, gradually accumulating and becoming organised into the masses described?

G. FIELDING BLANDFORD, M.D.

COLOMIATTI ON TUBERCLE IN THE GANGLIA OF NERVES.—In the *Gazetta delle Cliniche* of November 17, 1874, Dr. Colomiatti publishes a brief preliminary communication on the occurrence of tubercle in the ganglionic nervous system, promising more complete details at a future period.

In the body of a girl who had died of diffuse tuberculosis, he found a nodule of the size of a vetch, mostly caseous, in the last left dorsal ganglion but one of the great sympathetic, a similar nodule on the communicating branch between this ganglion and the one above it, and another on the last left dorsal branch of the spinal system communicating with the sympathetic. Microscopic examination showed that these nodules were tubercular; tubercles were found in the connective sheath of the ganglion, and in the perineurium of the above-named nerves, projecting inwards towards the nerve-elements. There were also tubercles in the interior appendages of the sheath of the ganglion.

In a lady who died of pulmonary and intestinal tuberculosis, and also during life had violent and continuous intercostal neuralgia on the left side, Dr. Colomiatti found at about the middle of the part corresponding to the neuralgia several nodules, almost all of cheesy consistence, involving the nerves and vessels. These nodules were tubercular; tubercles were also found in the cellular sheath of the vessels, and in the perineurium of the nerves.

A. HENRY, M.D.

RECENT PAPERS.

- A Contribution to the Study of Non-Carcinomatous Tumours of the Breast. By Dr. Monod. (*Archives Générales de Médecine*, January, 1875.)
 Some Remarks on the Condition of the Eyes in General Paralysis. By Dr. Mobeche. (*Annales Médico-Psychologiques*, November, 1874.)
 Changes in the Skin and its Appendages following Lesions of Nervous Structures. By Dr. Webber. (*Boston Medical and Surgical Journal*, December 17, 1874.)
 On the Cause of Death produced by Malignant Tumours. By Dr. Richelot. (*Union Médicale*, January 7.)
 Remarks on a Case of Obliteration of the Vena Cava inferior. By Albert Robin. (*Archives de Physiologie*, November and December, 1874.)

- Cerebroscopic Review for 1874. By M. Bouchut. (*Gazette des Hôpitaux*, January 5.)
- Description of Three Cases of Malformation of the Spinal Column associated with Lateral Curvature. By Dr. Goodhart. (*Journal of Anatomy and Physiology*, November, 1874.)
- Enchondromatous Tumour of the Base of the Cranium. By Dr. Leon Noel. (*Annales d'Oculistique*, November and December, 1874.)

MEDICINE.

LEREBoullet on BRONCHIAL ADENOPATHY.—Dr. L. Lereboullet calls attention, in the *Gazette Hebdomadaire* of October 16, 1874, to the symptoms by which the existence of bronchial adenopathy may be recognised, and to the foreseeing of the complications to which hypertrophy of the bronchial glands may give rise, so as to prevent the accidents which may result from it.

A very few years ago, the symptoms of hypertrophy of the bronchial glands were unknown. It is true that this lesion had not escaped the attention of pathologists. Every one who had made *post mortem* examinations of consumptive patients had found that phlegmasia of the intrathoracic lymphatic glands was one of the most common lesions of pulmonary tuberculation. Many medical men who specially devoted themselves to the study of the diseases of children had noted the commonness of these glandular congestions in scrofula and tuberculos. Military and naval surgeons, especially MM. Marchal (de Calvi), Daga, L. Colin, Le Roy de Méricourt, Fonssagrives, etc., had laid stress on the common occurrence of bronchial phthisis, or had reported cases of patients who were unable to resist the accidents brought on by tuberculos of the mesenteric and thoracic glands. Finally, in a certain number of cases scattered through the medical journals and the transactions of learned societies are related the accidents which may be occasioned by compression of the great vessels, the trachea, the bronchi, and the pneumogastric nerves. MM. Woillez, Daga, and Gueneau de Mussy specially, have helped in making this disease known. In analysing M. Fonssagrives' interesting memoir, M. Woillez described the tuberculous or melanotic enlargement of the glands arising from cancer or leucocythæmia, and was one of the first to point out that the disease might be recognised by a simple weakening of the vascular murmur.

Summarising and interpreting with much care and clinical acumen the cases published by his colleagues in the army and navy, and comparing them with those which he had himself collected, M. Daga wrote in 1866, an almost complete history of the disorders which might be brought on by congestion of the bronchial glands. Finally, M. Noel Gueneau de Mussy, in his *Clinique Médicale*, 1874, carefully pointed out, in a series of most important memoirs, the anatomical relations of the intrathoracic glands, particularised the symptoms by which their enlargements might be recognised in life, and, by laying stress on the relations which exist between bronchial adenopathy and various diseases of the respiratory system, showed the importance of the pleximetric researches which he had been the first to undertake. It is, therefore, possible, at the present time to summarise all the anatomical, anatomo-pathological, and clinical studies published during the last few years, and to draw attention to a

disease which is but little known, because the physical signs which characterise it are but too often neglected. If it were always true, as MM. Marchal (de Calvi) and Daga believed, that hypertrophy of the thoracic glands is a progressive and mortal disease, the serious complications, such as dropsy, dyspnœa, asphyxia which follow in its wake and which would have been more specially described by early observers, would without doubt have been more often pointed out. The methods of investigation would have been brought to greater perfection, and efforts would have been made to recognise so serious a malady from the commencement so as to prevent it. On the contrary, it frequently occurs that, silent in its progress, evolving itself at the same time as the pulmonary disorders which it helps to complicate, bronchial adenopathy is only recognised by the physical signs which characterise it. All the functional symptoms may be wanting, because the hypertrophied glands do not exercise any pressure over the neighbouring organs. The facts collected and cited by M. Baréty in his lately published work *Sur l'Adénopathie Bronchiale*, in fact show that, out of 101 cases of hypertrophy of the glands found on necropsy, the trachea or the bronchi were compressed by the tumour in only thirty-two instances, in five the superior vena cava, and the aorta in eight. In five instances the pulmonary arteries were adherent to the glands, or were compressed by them. The pneumogastric nerves were in twenty-six cases found enclosed in the glandular tumour or disorganised by compression. The phrenic nerves were affected in only eight instances. In the greater number of cases in which the neighbouring organs were compressed, it was found on *post mortem* examination that the size of the glands had materially increased.

It is in these cases, which are unquestionably the most numerous, that it is important to have resort to the methods of pleximetric exploration advised by M. Gueneau de Mussy. It will, therefore, be well to consider what percussion and auscultation indicate in relation to the extent and gravity of the hypertrophy of the bronchial glands. When the back part of the thorax is percussed in a healthy and well-formed man, we find that, if the arms be brought forward and the head bent down on to the breast, percussion of the interscapular region will obtain a much clearer sound than that induced by percussion of the superior and inferior spinal regions. From the third or fourth dorsal vertebra to the base of the chest, the deep lugubrious sound recalls the pulmonic sound given by percussion of the sternum. Above, the sound is less sonorous and higher pitched, but resistance to the finger is less marked, and it is easier to find in that than in the superior spinal region those differences of sonority and elasticity which may be brought on by pathological changes. To obtain at all precise results we must, it is true, so place the patient as to project the two shoulders forward. We must percuss strongly enough and without stiffening the wrist, we must multiply the explorations and not come to any conclusion until we have verified the same facts on several occasions.

Then only, after having trained ourselves to appreciate the results given by percussion in the interscapular region in normal conditions, which vary in different cases, we may rely on being able to recognise the differences of elasticity, sound, or pitch, which would escape an insufficient or inexperienced exploration. In the majority of cases in which Dr. Lereboullet has

believed that he has recognised hypertrophy of the bronchial glands at the commencement of pulmonary tuberculation (see his *Recherches cliniques sur l'Adénopathie bronchique*), he found a very dull sound, with strongly marked resistance to the fingers, in the superior interscapular region, along and outside the vertebral column.

This dulness, which for the most part cannot be considered as depending on induration of the pulmonary tissue, at times extends over the whole of the region comprised between the vertebral column and the spinal edge of the scapula. Percussion of the superior sternal region on the plane of the first division of the sternum and in the vicinity of that bone, may give modifications of sonorousness. M. Gueneau de Mussy says that, in order to ascertain them, we must for comparison percuss the two halves of the manubrium of the sternum, the first two chondro-sternal articulations on each side, the sterno-clavicular articulations, and the inner portion of the first two intercostal spaces.

M. Fossagrives, whilst asserting that percussion only gives negative results, had pointed out a fact of this kind. Sometimes even the hypertrophy of the anterior glands is very marked. Thus in one of Dr. Marchal's cases the existence of a mass of glands was pointed out which, thrusting the sternum forward, made its way out by a movement of expansion the moment the thorax was opened. MM. Daga, Woillez, and Fossagrives have also discovered that the glandular tumour may give rise to an arching of the sternum. M. Baréty affirms, and it has also been remarked by other observers, that percussion of the superior sternal region would give more certain and constant results than percussion of the interscapular region.

Adenopathies are very common and very fully developed in tuberculous cases, and, especially in soldiers and children affected by tuberculous, the mesenteric glands and those of the thorax are often affected from the outset of the disease; and, as M. Colin has observed, the congestion of the glands appears to precede the evolution of tubercle. In the phthisis of soldiers, the glands most frequently attacked are those which occupy the hilus of the lung or the bifurcation of the bronchi; it is, therefore, easy to understand how in these cases percussion of the interscapular region gives more definite results than percussion of the sternum. It also happens that in cases of pulmonary tuberculation, induration, characterised by dulness, takes its rise at the apex of the lung, and that the points at which the change in the pulmonary tissue is found are the superior clavicular or sterno-clavicular regions. When auscultation does not make the diagnosis clear, it is very difficult to decide whether we are dealing with a commencing tuberculous induration, or with a hypertrophy of the pretracheobronchial or retro-sternal glands. At the back the pleximetric phenomena are more often confirmed by the results obtained from auscultation. M. Gueneau de Mussy observes that, on daily examination of the chest of patients attacked by bronchial adenopathy, he finds modifications of the respiratory sounds, which are very important as means of diagnosis. They will vary according to the relation of the glandular tumours with the air-tubes, and according to the form and changes of form and size undergone by the latter. In slight cases expiration may be prolonged and slightly blowing (*soufflante*); when transmitted to the ear by the glandular tumour the

tracheal souffle is more easily perceived, and often takes on the character of a tubular inspiration. The voice and the cough will also exhibit an abnormal resonance. Indeed, after every fit of coughing another sound can be detected, which is called by M. Gueneau de Mussy the echo of the cough. At a later stage, the form and calibre of the air-tubes may be changed by the pressure they undergo, and they may become inflamed, when varying bruits will be perceptible. 'The tracheal and bronchial bruits,' says M. Gueneau de Mussy, 'are rough, sometimes rasping, and sharper than in the normal state; sometimes aspirated, giving a sensation of suction, which indicates the passage of the column of air through a narrowed channel. The expiratory sound is generally increased, and often overpowers the inspiratory sound; both sometimes end with a sibilus or a large bubbling râle, of which the constancy, the situation, and the persistence constitute, according to MM. Rilliet and Barthez, one of the most important signs of the disease.' The mobility of these râles is yet more characteristic, and specially also their peculiarity of echoing through a great extent of the respiratory system. But the most common and the most significant of all acoustic phenomena is the extreme weakness of the vascular murmur co-existing with the persistence of the pleximetric sonority, and showing itself through a large extent of lung. Many observers, and principally Stokes, Lebert, Hérard, Daga, Rilliet, Barthez, Noel Gueneau de Mussy, etc., have pointed it out and referred it to its true cause, the compression exerted on the bronchi by the hypertrophied glands. It has appeared to Dr. Lereboullet that, in pulmonary tuberculous with commencing adenopathy, this extreme feebleness of the respiratory bruit is often the only appreciable stethoscopic sign. At a later period functional symptoms add themselves to this character, and especially attacks of dyspnoea, which make its pathogenic interpretation very probable. Cruveilhier had already said, 'Many facts authorise me to admit, that the compression of the first division of the bronchi at the spot where they penetrate the thickness of the lung is not altogether foreign to the death by asphyxia of a certain number of children and tuberculous adults. We shall be certain of this if we carefully study the origin of the tuberculous lungs; and, if we follow the bronchial divisions into the thickness of the lungs to a certain depth, we shall see, independently of the large glands which surround the first division of the bronchi, smaller glands which penetrate into the thickness of the lungs with the secondary, tertiary, and quaternary divisions, whose angles of bifurcation they so thoroughly occupy that they flatten the tubes, and must render them scarcely permeable to the air. The attacks of suffocation undergone by some phthisical patients at an early stage of the disease may partly proceed from this cause.' A case cited by Dr. Jaccoud in his *Clinical Lectures* shows that this lesion of the intrapulmonary glands may exist without the hypertrophy of the glands which occupy the hilus of the lung or the bifurcation of the bronchi, being sufficiently pronounced to give rise to appreciable thermometric or pleximetric signs; but this cannot be the case in the majority of instances, and it can easily be understood that the weakness of the vesicular sound, as also attacks of dyspnoea, and finally asphyxia, may be the results of compression of the bronchi.

To sum up, then, interscapular or presternal dulness, a notable weakening of the respiratory

bruit with bronchial expiration, and increased reverberation of the voice and cough, are the most ordinary physical signs of bronchial adenopathy. M. Fonssagrives, and after him M. Baréty, also signalise the augmentation of thoracic vibration. Dr. Lereboullet has never observed it, nor the deformities produced by the projection of the glandular tumour, which have attracted the attention of several observers. On the contrary, he has seen the subclavicular or cervico-maxillary glands testify by their change to the lesion of the intrathoracic glands. A certain number of functional symptoms depending on the action exercised on the neighbouring organs by the bronchial glands serve to confirm the diagnosis, or even more frequently, by giving rise to suspicions of bronchial adenopathy, induce the physician to examine the superior thoracic region with more attention.

Dyspnœa is one of the most important of the symptoms. At first it is only a rather troublesome difficulty in breathing, only felt after some effort or a fatiguing walk; but soon this difficulty is almost constant, is accompanied by the most painful exacerbations, chiefly nocturnal, coming on in fits and being likely, as in MM. Fonssagrives, Gleize, and Durian's cases to end by asphyxia comparable to that brought on by strangulation. These attacks of dyspnœa, which are quite characteristic, have been differently interpreted. Sometimes, as in a case of adenoid, noted by Trousseau, they seem to have some connection with a compression exerted on the air-tubes. Cayol, Andral, Daga, Piorry, etc., have even quoted cases in which dorsal decubitus became impossible, the patients not being able to breathe except when leaning forward. The attacks of dyspnœa of a clearly intermittent character are, for the most part, related to neuro-paralytic phenomena due to the compression of the vagus nerve. They frequently appear to be dependent on the very rapid and extended pulmonary congestions which almost always accompany the development of tubercles, and which appear to commence with a rapid but transient increase in the size of the glands. Thus, after having lasted five or six days, showing themselves specially in the night time, these dyspnœal attacks often disappear for a fortnight, to re-appear on the occasion of a fresh crop of tubercles. Decubitus, and the hypostatic congestion, which it brings on; the accumulation of mucus in the small bronchial tubes (Hourmann); the fever always more marked in the night time; the vitiation of the atmosphere diminishing the amount of oxygen inspired, etc., all these causes combine, doubtless, to a certain degree, to augment the dyspnœa. In addition to the dyspnœa, a whistling inspiration, a broncho-tracheal wheezing (Empis), often perceived at a distance, and also a sinking in of the soft parts which enter into the composition of the walls of the thorax, a depression which is situated specially on the plane of the superior intercartilaginous spaces, and of the sub-sternal, subclavicular, and epigastric hollows, may be instanced as symptoms of the compression of the air-passages, thus constituting the phenomena of *tirage*. M. Gueneau de Mussy and, after him, M. Baréty, have also observed the diminution of the expansion of the thorax, which may be measured by M. Mathieu's pneumeter. The compression of the recurrent and pneumogastric nerves may bring on a series of somewhat interesting phenomena. The cough may be hoarse, dry, coming on in distressing and sometimes very painful paroxysms. M. Daga

compares it to the barking of a dog. M. Gueneau de Mussy has observed that it may take on all the characteristics of whooping-cough. In 1780 Lalouette, quoted by M. Baréty, had recognised this phenomenon in the following terms. 'It is while nature is labouring to deliver herself of a humour, which incommodes her, that congestions occur in the glands of the lungs and the mesentery, which, coming promptly to maturity, form suppurations destructive to infant life. The persistence of the cough changed into what is known as whooping-cough, the difficulty of breathing, the constant oppression, the redness and puffiness of the face, the small, rapid, and hard pulse, the slight shiverings, all announce suppuration in the lung, of which the glands are swollen.' M. Gueneau de Mussy explains those persistent coughs often met with, and difficult to cure, by adenopathy consecutive on whooping-cough. Like the cough and the dyspnœa already commented on, the changes in the voice equally depend on a compression of the recurrent and pneumogastric nerves. Dr. Lereboullet remarks that he has himself never yet met with anything but hoarseness of the voice and of the cough; and this symptom even was very transient, returning at certain periods, and of a varying duration. Aphonia has been noted in some cases, and even sudden aphonia with an attack of suffocation, in which the necropsy demonstrated the lesion of the recurrent nerve. MM. Gueneau de Mussy and Krishaber have proved that the laryngoscope can demonstrate paralysis of one of the vocal cords in these cases of aphonia. Finally, vomitings sometimes, but rarely, constitute the most striking and the most distressing phenomena of this disease. Like certain vomitings observed in phthisical patients, they appear due to an abnormal irritation of the pneumogastric nerve. If the phenomena which determine the compression of the trachea, the bronchi, or the pneumogastric nerves are of paramount importance, it is no less useful to know the symptoms observed when a venous stasis results from the compression of the vena cava superior. The very marked puffiness of the face, with the œdema of the eyelids, as symptoms of bronchial adenopathy, have been pointed out by a great number of writers, from Cayol and Piorry to Marchal de Calvi and Daga. This puffiness and œdema of the face appear to indicate a compression of the brachio-cephalic venous trunk, but they may sometimes depend on a momentary disturbance of the circulation which is altogether accidental. It is however, important to note that, when puffiness of the face is existent with the physical symptoms characterising bronchial adenopathy, it cannot by itself suffice to characterise the adenopathy. The same holds good of the other complications, such as venous dilatation, epistaxis, hæmoptysis, pulmonary œdema, etc., accidentally pointed out, and which appear connected with the pulmonary hyperæmiæ which often accompany the pulmonary affections which complicate hypertrophy of the bronchial glands.

Dyspnœa showing the characteristics already pointed out; the hoarse distressing cough, coming on in paroxysms, accompanied by a sero-spumous and sometimes sanguinolent sero-spumous expectoration; the changes in the voice; the crises of vomiting, the œdema and the puffiness of the face are in turn the functional symptoms which may most frequently be noted in cases of bronchial adeno-

pathy. But these symptoms are not sufficient to characterise it, and almost always the physical signs previously enumerated will allow its recognition. Bronchial adenopathy has been pointed out by M. Gueneau de Mussy in the course of small-pox, typhoid fever, and, above all, whooping-cough; but is it not common to find in these various diseases the complication with which we have now often met in cases of pulmonary tuberculation. At the commencement of tuberculosis, especially in children and soldiers, often the victims of tuberculosis of glands, adenopathy is very common. In patients debilitated by copious suppurations, especially when the suppuration is due to those caseous adenites of which the slow and progressive suppuration long arrests all treatment, chronic pulmonary congestion with bronchial adenopathy precedes the evolution of tuberculosis.

If looked after from the beginning, the pulmonary affection may be overcome; but if left to itself, pulmonary chronic congestion in common with adenopathy will soon be accompanied by circumscribed pleuritis with pulmonary sclerosis, speedily followed by the irremediable lesions which characterise chronic tuberculation. It is, therefore, important to advise methods of exploration which allow energetic treatment after the presence of the lesion is recognised. Frequent applications of tincture of iodine to the upper part of the chest; tincture of iodine in conjunction with croton-oil when the dulness extends to the anterior part of the thorax; tincture of iodine as a draught; arsenical preparations in large doses; narcotics, especially belladonna, for the cough; revulsives applied to the epigastric region or along the track of the pneumogastric nerves when vomitings or crises of dyspnoea come on, are the most efficacious therapeutic means.

SPINAL MENINGITIS TREATED BY CHLORAL.—

The *Archives Générales de Médecine*, for 1874, contains the record of a case of spinal meningitis, probably of rheumatismal nature, which was cured by the administration of chloral. The patient was a man aged thirty-seven, a currier, working almost constantly in water, but never having been troubled with rheumatism. He had been attacked three weeks before he came into the hospital with fever, accompanied by cephalalgia, anorexia, then with cramps in the calves of the legs and thighs, with pain in the posterior region of the neck, followed by permanent contraction of that region. When he was admitted into the hospital, on November 29, 1873, rigidity and contraction of the muscles of the posterior cervical region, pain at the level of the vertebral spinal apophyses, and a little want of sensation in the arms were present, as well as a contraction of the muscles of the thigh and leg, which imparted forced extension to the lower limbs, with complete anæsthesia extending from four inches below the femoro-tibial articulation to the ends of the toes. The muscles of the lower limbs were agitated by fibrillary contractions. The only cerebral symptoms were the diffused cephalalgia, which had been present for three weeks, and some sensations of confusion. There was no functional trouble of the rectum or of the bladder. The initiatory fever had disappeared. The pulse was 76, and the temperature was at 38.8° Cent. (101.84° Fahr.). All these symptoms disappeared towards March 1, after various remissions, and by March 20 the patient was completely cured. The contractions, the painful cramps, the anæsthesia with spontaneous pains, the absence of cerebral troubles, the immunity of the

bladder and the rectum, the absence of all paralytic or paretic manifestation, and the comparatively rapid cure, all made the diagnosis of spinal rheumatism admissible. The treatment employed certainly produced the best effects. Opium successively associated with sulphate of quinine, with tartar emetic, and with belladonna; then iodide of potassium in conjunction with belladonna, baths, dry and wet cupping, etc., only gave a very small amount of ease. Chloral only, administered for several days in progressively increasing doses, from three to nine grammes (45 to 135 grains) *per diem*, in divided doses was immediately followed by a very remarkable improvement, especially in relation to the tetanic symptoms. It is necessary in these cases to employ somewhat large doses, since it is demonstrated that narcotics or sedatives are only efficacious in convulsive affections of the spinal system, either clonic or tonic, when they almost approach the poisonous dose. In this case symptoms of intoxication only appeared late, and consisted merely of sleepy hebetude, a species of mild intoxication without excitement, hallucinations, dreams, without any change in the contractility of the pupil or any visual troubles.

LABOULBÈNE ON CYANOSIS.—At the meeting of the Paris Academy of Medicine, on December 18, M. Laboulbène communicated the details of a case of cyanosis which he had under his care at the Necker hospital. The patient was thirty years of age; his skin was of a dark colour, but his face was of a dark blue, especially in the middle portion, round the nose and lips, which were thickened. The neck was swollen, and showed venous pulsation, and the fingers were swollen into the shape of drumsticks. The disease had begun to show itself when the patient was about eight years old, but had made rapid progress during the last few months. At the present time examination showed signs of an organic affection of the heart, œdema of the lower extremities, ascites, and pulmonary congestion. The heart was hypertrophied and a noisy souffle occupied nearly the whole of the precordial region, attaining its maximum intensity at the level of the tricuspid and pulmonary orifices. M. Laboulbène believed that there was tricuspid insufficiency, and perhaps also constriction of the pulmonary artery; and that possibly also an abnormal communication existed between the right and left cavities.

SURGERY.

MOLLIÈRE ON TUMOURS OF THE TONGUE.—M. Mollière, surgeon to the Hôtel-Dieu at Lyons, makes the following observations upon some rare tumours of the tongue (*Progrès Médical*, no. 1, 1875).

Hydatid Cyst of the Tongue.—L. S., aged twenty-four, a schoolmaster, entered the Hôtel-Dieu, at Lyons, on Sept. 18 (?) 1874. This young man, who seemed to be of a robust constitution, dated his malady from the preceding March. A pimple then appeared upon the tongue, followed in a few days by violent pain. The pimple was then about the size of a pea, but rapidly increased. Inflammatory symptoms of great intensity supervened. The tongue acquired an enormous size, and for fifteen days the patient could swallow no food. When this inflam-

* There is evidently a mistake in the dates. Probably the 18th ought to be the 8th.—W. F. C.

mation ceased, he found the tumour of the same size as before. It was indolent, but it continued to enlarge, so that after some time he had much difficulty in performing the duties of his calling. When he entered the hospital a round and very hard tumour, about the size of a nut, was seen on the right border of the tongue, its greatest prominence being towards the upper surface. This tumour was well defined, regularly rounded, and indolent. The tongue was seized with a napkin, and drawn with a certain degree of force upwards and out of the mouth. It was thus rendered motionless, and in this way fluctuation was very distinctly observed. The tumour was diagnosed to be a cyst. On Sept. 12 it was operated on. The point of the tongue was seized with sharp forceps, and drawn outwards. A longitudinal incision was made in the dorsum, and the dissection carried on. The tumour adhered closely to the lingual tissues, and was deeply imbedded in the muscles among which it had its origin. There was also a deep adhesion to the ranine artery, which was opened quite at the base of the tongue. When the tumour was removed, it was very difficult to tie the artery. The wound was united by fine stitches of metallic suture. The patient was put to bed, and during the day was ordered gargles of iced and medicated water. Next day there was slight swelling. The tongue was as large as it had been before the operation, of a blue colour, and ecchymosed. There was no fever, and the temperature throughout the whole treatment never reached 39° Cent. (100.2° Fahr.) On the fourth day the stitches were removed. The clots which had accumulated were pressed out of the cavity, and on September 20 the patient left the hospital with only a small linear wound and slight swelling. He could speak freely, and had no pain. When the tumour was examined, a transparent vesicle with very thin walls was found within. It contained a small opaque point. This point was submitted to microscopic examination, and the parasite was discovered with its suckers and crown of hooklets, thus demonstrating the tumour to be an hydatid cyst of the tongue.

M. Mollière's reason for publishing this case is not so much the rarity of hydatid cysts of the tongue, for this rarity is only comparative; but because of the circumstances which accompanied it. The parasite must have entered the tongue during mastication, and the inflammatory symptoms were probably due to it. In the first place it acted as a foreign body, and we must suppose that the inflammation ceased when the parasitical cyst had formed. He calls attention particularly to the method he employed to demonstrate the fluctuation. Its value cannot be appreciated without a trial. It is, in fact, the only way in which the organ can be rendered motionless. The therapeutic treatment, also, he considers to have been the most certain and the most rational. Are we not certain by complete excision thoroughly to extirpate the evil? Total ablation also has the advantage of being much quicker than the other methods—injections, partial excisions, or cauterisations. Finally, he says, the only danger to be feared—that of hæmorrhage—is guarded against by the use of sutures. His observations upon this point are, in his opinion, as conclusive as possible, since the suture succeeded in arresting the flow of blood, even when it arose from a wound in the principal artery of the organ. It appears to him that the suture is not sufficiently used as a hæmostatic remedy in operations upon the

tongue. He speaks, however, only of the metallic suture. It has the immense advantage over sutures of vegetable material, that it covers the affected region with small sharp points, so that the patient instinctively keeps the tongue at rest.

Lipoma of the Tongue.—The patient was an old man, aged sixty. He had on the left side of his tongue a little tumour, of the size of a haricot bean. This tumour, which was seen under the stretched and transparent mucous membrane, was soft and of a yellow colour. The patient could give no information as to its origin or course. M. Mollière at first believed it to be an abscess or a syphilitic gumma. But there was nothing in the man's previous history to support this idea; and as the author could not discover any fluctuation, he concluded that it was a solid tumour, developed probably in the glands. As it continued to enlarge, he proposed its ablation, and proceeded as follows. A hole was made in a piece of cardboard through which the patient passed his tongue. An assistant held it, while the surgeon laid hold of the tumour with Guersant's hæmorrhoidal forceps, which had first been made red hot. After eight days the patient left the hospital cured. Histological examination proved that the tumour was a lipoma. Similar small tumours were seen at the base of the organ, but, as they caused no inconvenience, they were not touched. Lipoma of the tongue is very rare. M. Mollière calls special attention, however, to the method which he used in removing this tumour. It is expeditious, attended by but little pain, and is free from all danger of hæmorrhage. He says he has had recourse to it in other instances to remove small cancers situated on the point or edge of the tongue; and thinks that it ought to be substituted for the knife or the écraseur in all cases to which it is applicable.

W. FAIRLIE CLARKE.

MATERIA MEDICA AND THERAPEUTICS.

BROCHIN ON APO MORPHIA AND ITS PHYSIOLOGICAL AND THERAPEUTICAL PROPERTIES.—There has been much discussion for some time past respecting apomorphia and its physiological and therapeutic properties. Apomorphia, or rather the hydrochlorate of apomorphia, has chiefly an emetic action. It appears from many experiments made in the first instance in Germany and England, and more recently in France, that apomorphia produces vomiting, by what channel soever it reaches the organism, but that its effects are more prompt and more certain when it is introduced directly into the blood by intravenous or subcutaneous injection. If given by the mouth, the dose must be increased, and the effects are less certain. From the assemblage of facts known up to the present time, it would appear that apomorphia may be employed in subcutaneous injection without producing local accidents such as inflammation of the skin, consecutive abscesses, etc.; nor does the process seem to be very painful. The principal results obtained according to the reports of the medical men who have employed it, and who agree as to its principal points, are as follows. During the two or three minutes immediately following the injection, the patient does not feel anything. Soon a sensation of weight at the stomach, followed by a slight pain in the head, comes on. Then salivation becomes copious, the body is covered

with perspiration, one or two efforts at vomiting, without any result, occur, and at the third, or more rarely the fourth effort, the patient vomits three or four times successively; then comes a period of calm. The vomitings return after an interruption of five or six minutes, followed by another interval of calm, and the same scene is repeated five or six different times, to terminate definitively at the end of about half-an-hour, and to give place to a very quiet sleep, lasting from half-an-hour to an hour. Such, in brief, is the usual order of the effects produced by the hydrochlorate of apomorphia, according to M. Chouppé's paper on the subject, published in the *Gazette Hebdomadaire* for December, 1874, which contains all that is known on this new therapeutic agent.

The hydrochlorate of apomorphia has been injected in doses of from six to twelve milligrammes ($\frac{9}{10}$ to $1\frac{4}{5}$ grains), according to circumstances. Some experimentalists have fixed the dose at ten milligrammes ($1\frac{1}{2}$ grains) for an adult male, eight milligrammes ($1\frac{1}{5}$ grains) for a woman, and six milligrammes ($\frac{9}{10}$ grain) for a child. According to M. Chouppé, one centigramme ($1\frac{1}{2}$ grains) ought to be considered as the average dose for an adult. It must, however, be noted that a state of impending syncope, of such a nature as to cause grave apprehension, has already been observed in several patients. A case in point is reported in the *Gazette des Hôpitaux* of January 16, by Dr. Brochin, with the intention of warning practitioners against one of the possible dangers of this new drug. A woman, forty years old, went into the hospital at Geneva on October 22, complaining of gastric troubles without fever. After some days, she was attacked by sore throat and complete anorexia. The tonsils were red and swollen, and the tongue very much furred. A hypodermic injection of three or four milligrammes of hydrochlorate of apomorphia was administered to her in the sternal region. The pulse was full, and marked 100 beats. In four minutes the patient felt slight uneasiness and a little vertigo; she said she felt her head turning round and becoming stupid. She turned pale, became insensible, her pulse became extremely weak, intermittent, and then imperceptible; the pupils were dilated, and the respiration seemed to be entirely suspended. Slight tonic convulsions showed themselves in the left corner of the mouth and in the left cheek. The patient became inert, and did not answer to the questions addressed to her. When M. Prevost, under whose care she was, saw these alarming symptoms, he had recourse to every available means of exciting reflex action, such as sprinkling with cold water, inhalations of ammonia, energetic frictions, mustard-poultices, etc. The patient recovered consciousness in three minutes and vomited twice, after which she again fainted, became extremely pallid, and the pupils were alternately dilated and contracted. Counterirritation was again tried, and she was also electrified with an induction-current on the anterior portion of the chest. Improvement set in and gradually increased, until in about half an hour fresh vomitings followed by fainting again came on. Brandy and wine were given to the patient. In another ten minutes all danger seemed over, and she slept soundly for half an hour. She felt better when she woke, but up till twelve o'clock she continued to have sudden pallors, which did not, however, go so far as syncope. She, however, eventually recovered from the effects of the injection, and also from the gastric affection for which she had sought advice.

RAYMOND ON THE THERAPEUTIC ACTION OF BROMIDE OF CAMPHOR.—At the meeting of the Biological Society of Paris on December 26, M. Raymond communicated the details of two cases treated with bromide of camphor.

The first case was one of a girl aged nineteen, suffering from hysterical tremblings. Before she came into the hospital she was in a nervous condition, shown by a frequent desire to cry, pains in the epigastrium and back, etc. On the day of her admission she had a little gastric disturbance, and suffered from a dry, hoarse, spasmodic, hacking cough, recurring at irregular intervals, especially during the day. At the same time, she experienced difficulty in breathing, and some pain in the right side. Examination of the respiratory organs did not show anything abnormal. Twenty-seven days after her admission, when her general condition was satisfactory, after having for some days past complained of somewhat violent palpitations of the heart, she was suddenly taken in the morning with tremblings in the left leg, accompanied by the same symptoms, but less violent, in the right. The appearance of these tremblings was preceded by pains in the knees the preceding night. The trembling was specially restricted to the muscles of the thigh, and disappeared during rest. Sensibility to touch was absent in both the lower limbs. It was also accompanied with sudden movements always in the same direction. If the patient were desired to lift her leg, the muscles became the seat of convulsive jerks. The next day the shaking, which had on the previous day disappeared during rest, became persistent, and the right arm was affected. On the third day the left leg was agitated with involuntary movements, occupying nearly all the muscles; the leg was flexed over the thigh, and the patella was visibly raised during the contractions of the triceps. The movements were not so strong in the right leg. In the evening of this day there were tremblings of the tongue, palpitations, and a considerable amount of oppression. On the fifth day, treatment by bromide of camphor was commenced. The patient took five granules, and on the sixth day six granules. On the seventh day she was better; the tremblings were rather less violent, and sensibility reappeared in the members affected. On July 23, ten granules were given, and the movements had greatly diminished. On July 25, about 5 P.M., the patient was suddenly attacked with very powerful tremblings in the right arm and the left leg. On August 4, she took fifteen granules, and the trembling was improved. On August 10, she took nineteen granules, and the next day twenty. The improvement continued, and she soon left the hospital cured. In ten days she returned for fresh advice, as the tremblings had threatened to trouble her again; and she was again treated with bromide of camphor. She came back into the hospital towards the end of the month for some days, because the tremblings had returned, and again went out cured, after having again taken bromide of camphor.

In the second case, the condition was almost analogous; but is less conclusive, because the treatment by bromide of camphor was obliged to be interrupted, on account of the patient's complaints of suffering from gastralgia, which may possibly have been somewhat imaginary. She was a hysterical girl, aged eighteen, who, before her admission into hospital, had had four convulsive attacks without loss of consciousness. The last had occurred on the

eve of her admission. During the first month of her stay in the hospital, she had a mild attack of typhoid fever, from which she was not convalescent for some time. On her return from taking a sulphur vapour-bath, she was suddenly seized with tremblings of both arms and legs. The muscular jerks were regular, rapid, circumscribed, but rhythmical. The trembling persisted during rest, but disappeared during sleep. Sensibility remained intact. At the same time she had the characteristic oppression, globus hystericus, palpitations, and some spinal pains. Hysterical attacks and fresh tremblings of the right arm and left leg appeared. The patient was placed under treatment of bromide of camphor, commencing with two and then going on to ten granules. The use of the bromide of camphor was twice interrupted by attacks of gastralgia, and the cure was completed by bromide of potassium.

POLICHRONIE ON THE THERAPEUTIC AND PHYSIOLOGICAL ACTION OF IPECACUANHA AND ITS ALKALOID.—Dr. Polichronie (*Thèse de Paris*, 1874) has made a series of very interesting researches for the purpose of discovering the mode of action of ipecacuanha and of emetin. The clinical facts ascertained confirm M. Chouppé's results. M. Polichronie's conclusions are as follows. Emetin is the really active principle of ipecacuanha. All the physiological, therapeutic, and toxic properties of this plant are due to the presence of this alkaloid. Ipecacuanha administered in injections, in dysentery as well as in diarrhoea, possesses just as powerful properties as when it is administered by the mouth according to the Brazilian method. Injections of ipecacuanha form one of the best imaginable treatments for infantile cholera, and may be borne for a considerable time without weakening the little patients. In the diarrhoea of tuberculosis, injections of ipecacuanha give good results at all stages. This medication may also be advantageously employed to combat the profuse perspirations of phthisis. Emetin is a very toxic substance; it kills animals in two ways, sometimes by the prostration of the nervous system which it causes, sometimes, when given in small doses, by the intense enteritis which it brings on. Two hypotheses may explain the favourable action of ipecacuanha in diarrhoea; either a constrictor action on the vessels which would diminish the abundance of the secretions, or a substitutive action resulting from the inflammation of the mucous membrane. There is, however, no vaso-constrictor action, as demonstrated by the experiments made on the nerve of the submaxillary gland and on the arterial tension. The production of inflammation of the gastro-intestinal mucous membrane, and the length of time after which vomiting appears, seem, on the contrary, to plead in favour of the second hypothesis. Emetin brings on vomiting at the moment it eliminates itself by the gastric mucous membrane, as proved by the delay of the sickness and even more frequently its entire absence, after the section of the two vagus nerves; in this respect it acts quite differently from apomorphia and tartar emetic. These two substances, in fact, cause vomiting as quickly when the two nerves are cut as when they are intact. Finally, physiological and chemical researches into the action of this drug still more plead in favour of the elimination of the emetin by the gastro-intestinal mucous membrane. Emetin has no direct vomitive action on

the central nervous system, which is proved by direct injections of this substance into the cerebral arteries. It may, therefore, be admitted that in diarrhoea emetin acts by substituting a true inflammation leading to spontaneous cure for pathological inflammation; its effect under these conditions will be in all respects comparable to that of purgatives or of nitrate of silver. A vaso-motor action can no more be admitted in the perspirations, and we must believe either that by eliminating itself by the sudoriparous glands it tends to dry up their secretion, or that it acts by the revolution it produces in the digestive tube.

CARLES ON THE PURITY OF REDUCED IRON.—M. Carles (*Journal de Chimie et de Pharmacie*, 1874) has been making investigations into the composition and the value of preparations of reduced iron and pulverised iron employed in pharmacy. Iron was titrated by the acid of a solution of iodine in iodide of potassium, and sulphur, by absorbing the hydrosulphuric acid resulting from the action of the hydrochloric acid on the iron, in a solution of acid acetate of lead. The sulphuret of lead, when washed and dried, allowed the corresponding quantity of sulphuret of iron which had produced it, to be calculated by the help of its own weight. The residuum, insoluble in acid, was formed of carbon and silica. M. Carles has settled that all the reduced or pulverised irons not only contain oxide but sulphur, and sometimes even phosphorus and silica, which, when they are acted on by the acids of the stomach, give rise to very disagreeable eructations. Putting their purity out of the question, they also possess very variable physical characteristics. Certain specimens dissolve thoroughly by the cold process in hydrochloric acid diluted with its own volume of water, in two or three hours, whilst others resist the action of the same acid from eighteen to twenty hours. It is, therefore, perfectly justifiable to ask what can be the action of the liquids of the stomach on irons which resist hydrochloric acid for from eighteen to twenty hours, and if they do not almost wholly pass into the intestine as inert matter. The results of M. Carles's analyses are as follows:—

Iron.	Oxide of iron.	Sulphuret of iron.	Silica and carbon.
99,0	Traces.	Traces.	Traces.
75,0	24,0	Traces.	0,90
73,0	24,0	2,90	0,02
58,7	40,0	0,20	0,80
58,0	34,5	2,07	5,30
54,0*	45,0	0,40	0,40
52,0	46,5	0,20	1,10
32,0	55,2	1,20	11,59
70,0†	20,1	2,70	7,10

From his experiments, M. Carles comes to the conclusion that the reduced irons of commerce are defective as medicines, and that it is better to replace them by other soluble ferruginous preparations, which may be obtained in a pure state by all pharmacutists, which may be apportioned into exact doses, and of which the absorption is more certain.

RECENT PAPERS.

On Therapeutic Action in accordance with Science. By M. Gubler. (*Journal de Thérapeutique*, January 10.)
Description of a Portable Medical Battery, invented by Dr. Rains. (*Ibid.*)

* This iron disengaged, under the action of acids, carburetted and phosphoretted hydrogen of a most offensive smell.

† Pulverised iron.

The Elements of Electro-Therapeutics. By Dr. G. M. Blard. (*Archives of Electrology and Neurology*, November, 1874.)

On Rest as a Therapeutic Agent. By Dr. G. Brambilla, (*Gazzetta Medica Italiana-Lombardia*, January 2, 1875.)

Remarks upon the Relative Strength of Chloroform and Ether. By Dr. Allis. (*Philadelphia Medical Times*, December 5.)

MISCELLANY.

THE PHYSICAL AND MENTAL DEVELOPMENT OF WOMEN.—Dr. Gaillard Thomas, of New York, in his lately published *Practical Treatise on the Diseases of Women*, expresses his opinion that the human female, if placed under favourable conditions, should in physical and mental development be in no great degree inferior to the male; and he maintains that the customs of what is termed civilised life have depreciated her powers of endurance and capacity for resisting disease. Amongst the influences which, growing out of civilisation and refinement, tend to produce the diseases peculiar to the female system, Dr. Thomas enumerates neglect of out-door exercise, excessive development of the nervous system, and improprieties of dress. The author further observes that 'Neither appreciation of nor desire for physical excellence sufficiently exists among the refined women of our day. Our young women are too willing to be delicate, fragile, and incapable of endurance. They dread above all things the glow and hue of health, the rotundity and beauty of masculinity, the comely shape which the great masters gave to Venus de Medici and Venus de Milo. All these attributes are viewed as coarse and unladylike, and she is regarded as most to be envied whose complexion wears the livery of disease, whose muscular development is beyond the suspicion of *embonpoint*, and whose waist can be almost spanned by her own hands. These are they who furnish employment for the gynæcologist, and who fill our homes with invalids and sufferers.' These remarks are intended to apply to American women, who do not take as much exercise as their English sisters; but there is much in them which may be taken to heart by Englishwomen. There can be no doubt that active mental employment, healthy bodily exercise, and a simpler style of dress than that usually adopted by women and girls in the upper and middle classes of English society would materially conduce to the reduction of uterine and nervous diseases, and contribute to the ultimate health and well-being of the community at large, since 'Mothers of great men should themselves be great.'

MEDICAL EDUCATION OF WOMEN IN RUSSIA.—A correspondent of the *Times* gives an account of the arrangements for the medical education of women in Russia, which, it appears, are on a scale of magnitude of which little is known in this country. These arrangements are, we are informed, under the direction of a lady, and are carried on at the Academy of Medicine of St. Petersburg, in the same buildings and by the same professors as for the young men students, but at entirely different hours. Two hundred and forty young women have now been pursuing the course of training for three years, the term fixed being four. None have, therefore, at present been sent out to begin their work and profession. The payment is sixty roubles a year. A small proportion only come from the capital; the larger number of students are from the provinces, many being sent by the different governments or town councils, and their education paid for, on condition that they return to practise in these localities, where their services are eagerly anticipated, for in many of the distant parts of this vast empire medical aid is not to be had. There are three lady superintendents over the classes; the hours are from 8.30 to 4. The writer of these details bears witness that in the several classes which he visited where lectures were being given, the behaviour of the audience was all that could be wished as to earnest attention, intelli-

gence, interest, modesty, and seriousness; the extreme pains and evident interest shown by the professors being equally creditable and pleasant to behold. A large hospital is attached to and forms part of these vast buildings, so there is every opportunity of practical and theoretical instruction afforded on the spot. The writer also visited the cottage hospitals or 'barracks,' to which we have already drawn attention in these columns, and which have been opened during the last three years. They are pretty wooden chalets situated in a large space with trees, in an open and airy part of the city. Each house, or hall, contains sixteen beds, eight on each side, filled with men. The ventilation and warming arrangements seemed to be perfect, for the skylights above, and a lower floor beneath, for the apparatus for both purposes. A sister of charity superintends in each; but the chief point in this excellent scheme is the school for nurses attached to it, in which seventy young women are being trained, not only in the care of the sick, but in the higher branches of medical knowledge also; twenty pupils are resident, the others come by day. The entire nursing of these three hospitals is done by them, and the instruction is given by medical professors; students do not attend. There is a fourth hospital, for women, in a house close by, but the sanitary arrangements are found to be so far better in the wooden buildings that another is about to be constructed on the same plan, which will replace the house. The plan was begun after the war, and the red cross on the hospitals marks the connection with that period. Again, the writer speaks of being struck with the plain, sensible earnestness of the pupils, most of whom are orphans, who pay nothing, all the expenses being defrayed by the Empress. None have been yet sent out, but, as in the other case of the medical students, their services are eagerly expected and anticipated. The mortality in these hospitals is stated to be very low, and all the arrangements are of the most pleasant and comfortable nature.

ERRATUM.

In the review of 'Cholera: How to Prevent and Resist it,' in the MEDICAL RECORD of January 20, the word 'casual,' p. 43, column 2, line 18, should be 'causal.' The sentence should read: 'The mathematical probability that the connection [between variation of the ground-water and of cholera and typhoid] was causal, amounted to 36,000 to 1.'

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The London Medical Record.

WEDNESDAY, FEBRUARY 3, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE FORMATION AND TRANSFORMATION OF BONE. BY PROFESSOR R. VIRCHOW.*

(Concluded from page 46.)

From these experiments it is inferred, rather too hastily in my opinion, that there is no possibility of the existence of another form of growth of bone, especially the so-called interstitial growth already described by Clopton Havers. I have taken the trouble, as Herr Wolff will admit, to take into account this eventuality also, and am convinced of the possibility of such interstitial growth. Herr Kölliker has, it seems, not taken sufficient notice of those experiments which I regard as very conclusive, namely, those of Herr Carl Ruge. Herr Ruge cut a piece from the bone of young animals, and determined the size of the bone-corpuscles and of the interspaces between them. He then, after waiting for some time, cut a similar piece from the corresponding bone on the other side. Having ascertained by previous comparison that the symmetrical pieces had similar relations to each other in respect of structure, he further found that in the piece last removed the interspaces between the bone-corpuscles had increased in size. The osseous corpuscles had become compressed, but had undergone little change in themselves. Herr Kölliker, so far as I understand him, has assumed that Herr Ruge re-examined the same piece after some time; but this is not the question. I regard this experiment as altogether satisfactory; and I can add that Herr Strelzoff has arrived at similar results.

But, admitting that there is interstitial growth, it is still placed beyond doubt by the measurements of Herr Ruge, that the results of this growth are relatively small. Although the differences in the distance between any two bone-corpuscles are capable of measurement, the total result is yet very small, and does not go far towards the lengthening of an extremity or of a tubular bone. Only a fraction of the material which contributes to the construction of the body arises in this way; but so long as these researches are not refuted, so long as no judgment is pronounced against them, so long must I maintain that they are worthy of regard.

The peculiarity of certain parts has to be here considered. A long time ago, I pointed out that the lower jaw was an object specially fitted for these discussions; and a number of experiments have been made on it, but no general agreement has, as yet, been arrived at. Thus, Herr Kölliker has declared himself in favour of growths by apposition; Herr Strelzoff in favour of interstitial growth. While I am still of opinion that the jaw affords

grounds for supposing that interstitial growth takes place, I must at the same time call special attention to the fact that there are few bones in the human body which present the same conditions as the lower jaw.

The formation of the teeth is something exceptional; but even in itself the lower jaw possesses much that is special. In the examination of its mode of growth, the attention of observers has diverged in very different directions. All, however, even Herr Kölliker, have acknowledged that the middle piece, which supports the incisor and canine teeth, enlarges much more than would be expected according to the *à priori* ideas on the possibility of this growth from the original cartilage at the symphysis. Very early after birth, the union of the symphysis is already so complete, that new materials for growth outwards can no longer be furnished from this part. Nevertheless, the individual parts diverge from the middle line, the places of the individual teeth are pushed farther back, the foramina mentalia become more and more apart from one another. The explanations that have been given are not sufficient to account for the growth of these parts by the apposition and resorption theory alone. According to this theory, the lower jaw should grow chiefly at its posterior end. It is certainly capable of proof, that absorption takes place at the anterior margin of the coronoid process of the condyle; giant-cells lie here and eat away the bone. As at the same time there is apposition from without at the posterior part of these processes and at the angle of the jaw, the possibility certainly arises that the ramus of the jaw grows in a direction backwards. Besides this, it is assumed that apposition and absorption take place on the alveoli, in such a way that there is apposition on the median surfaces, absorption of the external (posterior) ones; so that the whole row of teeth gradually moves backwards (outwards). But here there arises a great difficulty. Such a movement is readily understood; but it is not yet proved. Moreover, it has its own exceptional difficulties to overcome; for the teeth pass out of the alveoli in the direction of the nerves and vessels which enter their roots and lie in special canals. This is a difficulty which is not yet solved, and which rather affords an argument in favour of a certain interstitial formation. Nevertheless, I will accept another theory if it can be proved. I only assert that in the mean time no one has a right to say that these facts are irrelevant, and that they are capable of a quite simple interpretation by the recognised method. If, moreover, we take into comparison the opposite conditions, such as are met with after the loss of the teeth, and in old age, that is, the descending series, it is difficult to avoid admitting that here interstitial atrophy is added to the indubitable and powerful process of external absorption which takes place.

I will, as the time is advanced, allow myself only a few remarks with reference to the spongy substance. One is, as to the disposition of this substance; I find that here there is still more difficulty as to terminology, since, as far as I can make out, the name spongy substance has been applied to two different things. When young, bone is formed in a certain degree of abundance, as is especially the case in pathological cases, *e.g.*, in many forms of periostitis, it usually shows a looser and very porous structure, and an opaque whitish colour. In pathological language we rightly call this an osteophyte. In quite thick

* Read before the Berlin Medical Society, November 25, 1874. (*Berliner Klinische Wochenschrift*, January 4 and 11.)

layers, it sometimes assumes the consistence of pumice-stone. If the tissue be examined microscopically, spaces are seen, which are surrounded by osseous tissue, and filled with a softer tissue, a kind of marrow. But this is not proper spongy substance; it is what Guérin, in the history of rachitic bones, has distinguished as spongioid. If it remain persistent, it is converted on the surface of the bone into compact substance. Provisional callus also, the first stage of the formation of callus, depends on the presence of a mass of this kind; and no where can it be better seen than that it first becomes compact, and that only at a later date and under certain circumstances does it pass into spongy matter. Here is a very old preparation of a lower jaw that has suffered from phosphorus-periostitis, where the bone is covered externally with quite thick layers of osteophyte. I have brought the preparation with me, because the jaw was necrosed and thrown off after the formation of the osteophyte, and because it was the first case in which I was able to observe a complete regeneration of the bone from the periosteum. It is now twenty-five years since I brought the case forward at the jubilee meeting of the Würzburg Medical Society.

In the majority of cases these deposits are very thin, quite fine, not only in the normal growth of bone from periosteum, but also in periostitis. I pass from these matters, as they are generally known. Less known, however, are the great secondary osteoporoses, which are sometimes developed in supracortical layers outside the compact substance of the bone. Thus there is a *supracortical spongy substance*. Our collection possesses excellent specimens of this rare condition, which Lobstein has called *osteopsathyrosis*.

Diametrically opposed to this condition is the new formation of spongy matter in the medullary cavity, in places where otherwise no osseous tissue is formed. Under pathological conditions there is sometimes here a reproduction of spongy bone, as dense as is met with at the ends of the bones. Here you have a case of a thigh-bone, with metastatic cancer of the medullary cavity, in which, not in the cancerous deposits, but very extensively around them, the whole medullary cavity is filled with spongy substance. This is central spongiosis.

I now end my communication, the special object of which was to demonstrate by examples the great mutability of the inner formation of bone. There is indeed a great agreement from childhood to adult age in the disposition of the lamellæ of spongy tissue in normal bones; but the same uniformity by no means exists in their number. Herr Wolff has rightly insisted on the great constancy of duration which certain lamellæ show, although they constantly undergo lengthening. Hence he concludes that these lamellæ grow in length by interstitial deposit and not by apposition. Yet it may be proved in the most conclusive manner, that the number of lamellæ of the spongy tissue is not the same at different periods of life. Every one must agree with me that this can only be explained by the formation of new lamellæ, which thrust themselves between the old ones, or by the entire destruction of the old lamellæ, and their replacement by new ones. The accommodation of bone to various conditions is so great, that it has for centuries demanded the attention of investigators; and yet there are still peculiarities which have hitherto been explained not at all, or only with great difficulty. I may, for instance, remind you of

the property which every bone has of forming new cortical substance. As an example, I lay before you some amputation-stumps, where you can see the formation of this secondary cortical substance at the end of the medullary cavity. This is a phenomenon of which we have no settled interpretation. For the teleological explanation, that the bone protects itself by means of the new cortical substance against injury of its soft parts, is nothing but a circumlocution of the fact. It is somewhat different with the researches on the architecture of the spongy substance. The service which all such researches have rendered in fixing attention on the mechanical conditions of the internal structure of bone, in adducing proof that the arrangement of the spongy matter is not accidental, but that it must be such as serves the mechanical objects of bone, and that it is regulated by certain mathematical principles—this great service will remain permanent. But the bone-builders (*Knochen-Architekten*) must learn to understand that the idea is untenable that the lamellæ, when once formed, are fixed parts of the bone, which neither can nor dare be changed. They must arrive at the conclusion that not only does new marrow proceed from compact cortical bone, but that also new lamellæ are formed from medullary tissue, and that the place, duration, and thickness of the new lamellæ of the spongy substance is regulated by the special local conditions. I hope that in the end even our opponents will become convinced that this view is better than the assumption of a predestinated constancy and duration of the internal arrangement of bone, for it shows us the way in which we have to seek for the explanation not only of the usual, but also of the unusual dispositions of the minute parts of bone. This way, which now appears fixed, will certainly be lastingly fortunate; and I have no doubt that in following it we shall arrive at an explanation of the fact that in certain places, and under certain conditions, the marrow again becomes ossified and forms new bone.

ON ALCOHOL. By B. W. RICHARDSON,
M.D., F.R.S.*

The Position of Alcohol as a Food; its Effects on the Animal Temperature; Hygienic Considerations.

The question that lies before us for discussion to-night is short and definite. It is included in the three words: Is alcohol food?

We have studied in the previous lecture the purely physical action of alcohol on the animal body, that which stands apart from the action of food, and we have learned from the study that over the nervous system and over the vascular supply this spirit exerts a specific influence. We now inquire whether the influence ends there, or whether there may be, in addition, either a sustaining, and constructing, or a heat-giving power—that is to say, a force-giving quality in it. If there be, then the simple physical effects are perchance tolerable, or at all events are not sufficient to militate against the advantages which lie on the food side of the question.

It may be well to rest for a moment to consider the position of men and animals upon the earth in relation to the means given to them for their support as living, moving, and, in the higher animals, thinking structures. This position is well defined. The theory that man was made originally out of the dust

* Cantor Lecture, No. IV. *Journal of the Society of Arts.*

of the earth is, after all, the most scientific theory that has ever been advanced as to his primeval origin, if the word dust be only extended so as to include the actual compound substance of the earth. For in the earth are to be found not only all the elements out of which he is constructed, but even certain of the elements in the same kind of combination as we find them in him. In the earth, water, salts, and organic matter are found; in man the same are found. The man is in many respects of motion a reflex of the motion of the earth, presenting periodicities of movements, and of movements in a circle in like mode. As if to complete the analogy, this remains true, that the earth yields spontaneously to man, either from herself directly or from the vegetable kingdom which lies between her and man, all the requirements for his existence. Whatever, therefore, man invents, though it may seem to be a great necessity, is not a necessity except to those who, being trained to its use, have been led artificially to believe it essential. Thus nature has produced water and milk for man to drink, and they are, in truth, all the fluids that are essential. This lesson, which nature teaches by her rule of provision for the necessities of animal life, is supplemented by many other facts, each equally authoritative. There is ever before us the great experiment that all classes of living beings beneath man require as drink none other fluids except those I have named. We see the most useful of these animals performing laborious tasks, undergoing extremes of fatigue, bearing vicissitudes of heat and of cold, and enduring work, fatigue, and vicissitudes for long series of years, sustained by their solid food, with no other fluid than simple water. We see again whole nations and races of men who labour hard, endure fatigue and exposure, and who live to the end of a long and healthy life, taking with their solid sustenance water only as a beverage.

When we turn to the physiological construction either of man or of a lower animal, we discover nothing that can lead us to conceive the necessity for any other fluid than that which nature has supplied. The mass of the blood is composed of water, the mass of the nervous system is composed of water, the mass of all the active vital organs is made up of the same fluid; the secretions are watery fluids, and if in any of these parts any other agent than water should replace it, the result is instant disturbance of function that is injurious in proportion to the displacement.

When we turn therefore to the use of such a fluid as alcohol under any of its disguises,—as spirit, as wine, as beer, as cider, as perry, as liqueur,—we are driven *à priori* to look upon it as something super-added to the necessities of life; to look upon it, in a word, as a luxury. In such sense it has always been received amongst those nations which have most indulged in it. It is something added to the ordinary life, something unnecessary, but agreeable. Wine, added to the meal, transforms the meal into a feast; it is supposed to make glad the heart, but it is never supposed that if the wine were not possessed the life would be shortened. When now we offer wine, it is by the effect of habit and education, an offering of a thing that is super-necessitous, and in such wise a compliment, an indication of desire or of willingness to be exceedingly hospitable.

All the evidence of a general kind which can be gathered from these observations points to the use-

lessness, for man, of so artificial an agent as alcohol. But, after all, an assumption so derived may be false. We have already seen that when alcoholic spirit is taken into the animal body it produces in it exceedingly marked effects; it may therefore, by accident, I might almost say, play in some manner the part of a food and supplement water. Indeed, it is a form of water in which a compound of carbon and hydrogen has replaced hydrogen. Let us then ask the question: Can alcohol be in any sense accepted as performing any other part in the body save that physical part which we have considered? Can it have happened that man, by his invention, has added, to nature, a food? And let us answer the question as candidly as the facts of experiment and experience will permit.

Constructive Materials of the Body.—The living animal body is constructed out of a few simple forms of matter, which possess, during life, the power of motion. It is, in its living state, a noun and a verb. Whatever helps to maintain it in perfect order of construction, whatever enables it to move of its own mere will and motions, may be considered as a food. The one help gives matter and mass, the other gives force or spirit to the mass. With the progress of organic chemistry, after the discovery of the art of organic analysis, it soon became evident that what are called foods are divisible into two great classes; those which supply material or tissue, and those which supply heat or other variety of force. Gradually it was detected that the building foods all contain the element nitrogen as an essential part, and that the force-supplying foods are free of nitrogen, are hydrocarbons, substances that will undergo combustion by oxidation, and thus liberate force for the motive uses of the economy. So foods have for a long time been sharply classified as nitrogenous or tissue-feeding, and as respiratory or heat-producing. At the present moment this long-accepted view is undergoing some modification. It is being elicited that the nitrogenous foods are to a certain degree heat-producing, but I need not at this stage enter on the nice question involved. I may safely, for the practical purpose we have in view, let the division of the classes of foods remain as described above.

The nitrogenous foods exist in the animal body in the form of what is called colloidal matter, the word colloidal being a term signifying a jelly-like substance. The purest form of this matter is found in the blood in the white, elastic, plastic matter, called fibrine. By repeated washings of a portion of this substance I have prepared here, from the blood of the ox, a beautiful specimen of this colloid of the blood. Of a similar colloidal substance, the moving muscles are formed. In a fluid state, and permanently fluid at the temperature of the living body, the colloid called albumen forms part of organic structure. Under the names of gelatine and chondrine, a nitrogenous colloidal substance forms the organic matter of the skeleton, of the cartilages, of the sheaths of muscles, of the tendons. The eye-ball is constructed out of a series of colloidal tissues. All the membranes which envelope the visceral organs, and which possess elasticity, are colloidal. The outer covering or skin is colloidal, the nails are the same. Even in the brain and nervous matter there is distributed a colloid. Thus, if we sum up the various parts of the body we may say that all the active masses of structure are nitrogenous and colloidal.

In combination with this active matter, there are, however, two other material ingredients, viz., water and saline substance. Upon its combination with water, the activity of the colloid depends. Upon the saline rests the various kinds of combination of the colloid with the water. In bone the gelatine is combined with a salt, called phosphate of lime, with carbonate of lime, and other salts, in much larger proportion than itself. In fibrine the colloidal substance is nearly divested of saline; but in all parts these three material compounds make up the animal structures.

Lying outside these structures in the natural state, but really as an adventitious formation, is one other animal product, viz., fat; a substance detrimental to the motion of the active parts when present in excess, but at the same time capable of combustion, and of yielding heat by the process.

We have now before us the constructive or building parts of the animal body. Excepting the water, the salts, and the fat, they all contain nitrogen, and they take their specific quality from that specific fact. We know that the source of them is the vegetable kingdom, that they are formed by nature in that kingdom, are transferred from the vegetable to the animal, are not made by any natural process within the animal, have not yet been made by any artificial process known to the chemist, and can therefore only be supplied from the one natural supply.

Alcohol contains no nitrogen, it has none of the qualities of these structure-building foods; it is incapable of being transformed into any of them; it is therefore not a food in the sense of its being a constructive agent in the building up of the body.

In respect to this view there is, I believe, now no difference of opinion amongst those who have most carefully observed the action of alcohol. There is, however, a difference in relation to its action as a fat-forming food. It appears to be on evidence that men and animals beginning, while in a perfect state of health, to take in excess certain fluids containing alcohol become fattened. Notoriously, ale and beer fatten; and in some parts of the country certain animals—calves for instance—are rapidly fattened by the process of feeding them with a mixture of barley flour and gin. But through all these apparent evidences there may run an error. The fattening may not be due to the alcohol itself, but to the sugar or the starchy material that is taken with it. As a matter of general experience on which I have tried to arrive at the truth with as much accuracy as can be obtained, I am led to the conclusion that pure spirit drinkers among men, I mean those who do not mix sugar with the spirit, and who dislike spirit which is artificially sweetened, are not fattened by the spirit they take. This tallies also with the observations on the action of absolute alcohol on inferior animals, for they certainly, under that influence, if they are allowed liberty to move freely, do not fatten.

The question of the effect of alcohol in fattening presents still another difficulty. Alcohol, when it is largely taken, unless the will of the imbibor be very powerful, is wont to induce desire for undue sleep, or at least desire for physical repose. Under such conditions there is an interference with the ordinary nutritive processes. The wasted products of nutrition are imperfectly eliminated, the respiration becomes slower and less effective, and there is set up a series of changes leading, independently of the alcohol as a direct producer of fat, to development and to deposit of fatty tissue in the body. All these

circumstances militate against the hypothesis of the origin of fatty material direct from alcohol, nor is there any obvious chemical fact that supports the hypothesis. We understand chemically the transformation of starchy matter into one form of sugar, and we infer that in the animal body sugar is transmutable into fat. We know also that we can transmute sugar into alcohol, but as yet we see no way back from alcohol into sugar; if we did, the difficulty of tracing alcohol into fat would probably be over.

Physiological argument nevertheless lends some countenance to the view that alcohol may, by an unknown process, be transferable into fat. It is true that some confirmed alcoholics who do not wax fat in the ordinary sense of the term, that is to say, who do not fill out with fat, from the separation of fatty matter in their cellular tissue outside the vital organs, do, in certain instances, undergo a process of fatty change within their organic structures. Their muscles, including the heart, become the centres of the degeneration called 'fatty,' and by the interposition of cells of fat in the minute muscular elements, the activity of the fabric is destroyed, sometimes to a fatal destruction. The same degenerative change may extend also to other organs, to the brain, and to such active glands as the liver and the kidney.

At first view it occurs to the mind that here is evidence of effect upon cause. At the same time it is not so clear that the effect is direct from the cause; for when we proceed to examine into all the data that lie before us, we discover such an absence of uniformity in differing examples of the fatty change that we lose alcohol as the clue to discovery. Some alcoholics truly present the fatty modification of tissue, other alcoholics do not present it, so that alcohol may be in active operation and may neither be promoting the production of fat from other material nor yielding it. Lastly, the fatty change of tissue may progress, in the absence of alcohol, in the tissues of those who altogether abstain.

In conclusion, therefore, on this one point of alcohol, its use as a builder of the substantial parts of the animal organism, I fear I must give up all hope of affirmative proof. It does not certainly help to build up the active nitrogenous structures. It probably does not produce fatty matter except by an indirect and injurious interference with the natural processes.

If alcohol be not a substance out of which the animal tissues are formed, may it not be a source of energy of actual motion; may it not supply the power of doing work? Alcohol, we see, contains two elements that will burn in the presence of oxygen, viz., carbon and hydrogen, and although by their combination already with oxygen in the alcohol, a certain measure of their potential energy is lost, they are still capable of combining with more oxygen. This is proved by various experiments. When alcohol is burned, that is to say, when, with its combustible elements, free oxygen combines, there results from the chemical combination a certain degree of heat. The heat produced does not approach that obtained by an equal weight of hydrogen, it is not so great as that produced by an equal weight of carbon, but it is greater than that caused by the combustion of phosphorus, and very much greater than that caused by the combustion of sulphur.

The combustion of alcohol thus spoken of is that active combustion which is excited when a light is brought into contact with it so that its vapour may burn. But it is not actually necessary that such

instant active combustion should be set up. If we distribute alcohol over a wide surface in the presence of some chemical substances it will then by its combination with oxygen liberate a greater or lesser degree of heat. If I saturate a portion of paper with alcohol and on that paper pour a little of this finely divided powder, called platinum black, I at once get evidence of heat which may be so active that perfect combustion may ensue. In this instance the alcohol is transformed, as in burning, in great part, nay it may be altogether, into carbonic acid and water, which means the completed combustion. If in place of absolute alcohol, in this experiment, I use alcohol diluted with water, then instead of obtaining the active combination and combustion I get a slower oxidation with the production of substances to which attention has already been directed, viz., aldehyde, acetic acid, and volatile acetic ether. In this jar I have in progress these various changes in alcohol produced by the mere exposure of the vapour of alcohol to platinum black damped with water, in the presence of the air.

(To be continued.)

MURRI ON THE THEORY OF FEVER.*

The fact that dogs with divided cervical spinal cord cool more rapidly in cold air than healthy dogs, whilst in warm air they become warmer than the latter, led Naunyn, Quincke, and Von Dubczanski to the supposition that, after section of the cervical spinal cord, the amount of heat given off in consequence of paralysis of the vessels is increased, and simultaneously, the amount of heat produced is increased, and this latter, by the removal of influences inhibitory of the production of heat—these inhibitory influences proceeding from the brain. Substances which produce fever were said to act in a similar way. It is questionable, however, as Riegel has already pointed out, whether dogs with divided spinal cord have not much more lost the capability of giving off more heat in a warm atmosphere. This view is favoured by the absence of the so-called heat-dyspnoea and of the influence which heat exercises on the pulse and the blood-circulation in animals not operated on. It has been generally assumed, without any estimation, that the dogs operated on give off more heat in cool air than the healthy ones. Murri shows that the reverse must be the case; if, for instance, in a comparatively small part of the body (*e.g.* on one ear) there arise vasomotor paralysis, then this part, through increased supply of blood, becomes warmer; when, however, *all* the vessels of the body have been paralysed, it is not obvious how, upon the whole periphery, an increase of blood-supply and giving off of heat should arise. The diminution in the blood-pressure must on the contrary lessen the quantity of blood flowing through the capillaries in the unit of time, and thereby the radiation of heat. In addition to this, the absolute quiescence of the muscles in consequence of paralysis leads to venous stasis, and so a part of the blood is removed from the circulation.

From the experiments of Goltz and Naumann upon the influence of vascular tonus on the circulation, it equally follows that section of the spinal cord must greatly injure the circulation; the simultaneous

paralysis of the splanchnic nerves permits of the greater part of the blood to accumulate in the abdominal vessels. As a clinical proof that interruption of the spinal cord retards the circulation, the author cites a case of sudden circumscribed compression of the spinal cord in consequence of the penetration of pus; in this case oedema occurred in the paralysed lower half of the body, without, either at the bedside or at the necropsy, there being found any disease of other organs, or any circumstance other than disturbance of the circulation. The experiments of Murri, made upon dogs, show in fact that after section of the cord the skin is less warm, and gives off less heat than normally. Simultaneously with measurement of the rectal temperature, the temperature of the skin was taken with mercurial thermometers, which were either bound to the skin, or (generally) introduced through a wound, under the skin. The temperature of the skin sank after the operation in large as well as in small dogs, in a cool atmosphere as well as by a temperature of 30° Cent. (86° Fahr.). On increasing the temperature of the air, in the course of an experiment, to 40.2° Cent. (104.36° Fahr.), the temperature of the skin rose only to its original value of 39.6° Cent. (103.3° Fahr.), whilst that of the rectum rose to 41.6° Cent. (106.88° Fahr.) against 40.4° Cent. (104.7° Fahr.) before the operation). Cooling of the skin also took place, when, the temperature of the room being about 25° Cent. (77° Fahr.), the internal temperature rose after the operation. And when, in course of the experiment, the temperature in the rectum had risen above the normal, in spite of regular, frequent, repeated measurements, the skin was never observed to become warmer. It is not to be thought of that the skin, always cooler than normal, should give off greater quantities of heat than normally; it must give off less. The direct measurements of the heat given before and after section of the cord, were carried out in the following way. The dogs were placed in a wooden box, at a constant temperature of the room of 24° Cent.; the increase in the temperature which the air in the box underwent, at distinct intervals of time, through the presence of the dog, formed the measure for the amount of heat given off by the animal. It was shown that the dogs warmed the air of the box much more before the operation than after it. Now, in spite of the diminished giving off of heat, the interior of the animals became colder; they must therefore have produced less heat after the operation. Further, this diminution of production can be explained by the paralysis of the muscles, by the disturbance of the circulation which leads to imperfect supply of oxygen to the organism, farther from the diminished muscular work of the heart, and by the diminution of the internal friction of the blood-current, etc. Now, in opposition hereto, in fever more heat is produced than normally under the same conditions; the result of section of the spinal cord cannot therefore be applied to the theory of fever. Inasmuch as, further, no experimental lesion of the nervous system is known, which by itself increases the production of heat in the tissues, the theory of the neuroparalytic nature of fever falls. And even if septic fever actually had this origin, the generalisation for all fevers is not established.

Murri further divided the cervical spinal cord of dogs, in which he had produced septic fever; here the operation had not the above-mentioned cooling influence.

In other experiments the author divided, first the

* A. Murri, Sulla Teoria della Febbre. Fermo, 1874, 8vo, 132 pp. From Abstract in *Centralblatt für die Medicin. Wissensch.* no. 1, 1875.

cord (which produced a cooling) and then injected foetid pus under the skin of the dogs, on which their temperature rose quite as in the animals not operated on. These operations, whereby the hypothetical 'heat-inhibiting centre' in the brain is excluded, speak against the supposition of Quincke and Naunyn, according to whom pyrogenic substances produce an increase of temperature by paralysing the heat-producing inhibitory centre lying in the brain. On the contrary, they are easily explained from the point of view of the bio-chemical theory of fever (according to which pyrogenic substances, equally with ferments, produce abnormal chemical decompositions—a theory which is supported by Murri.) Septic fever can be produced even after destruction of the whole lower section of the spinal cord. The observation of Sapalski, confirmed by Von Dubczanski and Naunyn, that feverish animals, in a cool atmosphere cool more rapidly than sound ones, Murri cannot thoroughly corroborate from analogous experiments performed in a somewhat modified form on rabbits only. Sometimes the feverish (septic) animals cool more, sometimes the sound ones. However, allowing this analogy between feverish animals and animals with divided spinal cord, still this analogy is no identity, for then, also, the winter-sleep, which this analogy shows, would also be identical with 'fever.' Further, clinical observation shows, that patients do not in all feverish diseases cool more rapidly than healthy individuals.

Senator (and Heidenhain) consider that in fever the cutaneous arteries are more excitable than normally, and by frequent contractions limit the amount of heat given off. The author believes that he can refute, from observations on typhoid and pneumonia, this supposition, where continually and for a long time an equally warm skin is to be found (although Senator himself had shown that in spite of a hot skin the arteries do not require to be widened *ad maximum*, and can even be narrowed, Filehne). In a patient with pneumonia, Murri measured the temperature under the toes; it remained for hours constant, 37·8° to 37·9° Cent. (100·04° to 100·22° Fahr.), with an axillary temperature of 40·5° to 40·6° Cent. (104·9° to 105·08° Fahr.). The relation of these numbers is quite the same as exists in health.

Murri further questions the difference between feverish and healthy individuals which Senator proposed, viz., that the regulation of heat is insufficient. The muscular work of a healthy person lasts only a limited time, and during the pause the body first rids itself of the surplus heat; if here the heat-forming process (muscular exercise) were constantly continued, then the healthy individual would also no longer be able to regulate it. The febrile process goes on without a break, and it is not proved that the fever-patient would not regulate his condition of heat quite as quickly as a sound person, if the feverish excess of production gave him the necessary pauses. The above-cited experiment of Sapalski, together with Senator's view, that his feverish dogs cooled considerably in cool calorimeters, support the view that in septic fever the capability of giving up heat is not diminished, or that this view is quite a secondary matter for the theory, and appears to the author to prove that the higher temperature is chiefly dependent simply upon the increased production. Murri does not, however, question the reliability of Senator's deduction for all cases.

Murri further shows how all clinical processes (incubation, predisposition, immunity, spontaneous

origin, etc.) are throughout explicable with the light of the bio-chemical fever theory, whilst from the neuro-paralytic point of view they are quite inexplicable. The latter also does not explain the qualitative metamorphic changes in fever.

The author then enlarges upon his views of fever (already fully explained in the LONDON MEDICAL RECORD, November 26, 1873), and replies to Hüter, who had made as the outset of his theory a single observation on frogs, although he had not proved in his frogs the essential phenomena of fever, e.g. increased heat, whilst notwithstanding these animals, as former investigations have shown, have a temperature which is slightly higher than their surroundings, i.e. show a proper production of heat. In addition, this or that phenomena might be present in a certain fever (septic) and absent in another kind, so that 'globulöse Stase,' as such, does not belong to fever. Murri regards Hüter's theory as refuted.

The antipyretics the author divides into antipyretics (properly so called) and refrigerants. The former act directly against the perverted bio-chemical process (like quinine in ague) either by annihilating the exciter of the disease, or by so changing the organism that the conditions for the existence of the exciter of the disease are no longer present: the refrigerants (as digitalis in small doses) only afford favourable conditions on the part of the circulation, etc., for the giving off of heat.

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FÉRÉOL, RINGER, GOULD, AND TWEEDY, ON JABORANDI.

Dr. Féréol contributes, to the *Journal de Thérapeutique*, details of his experience in the administration of jaborandi to eight patients in his wards, at the Maison Municipale de Santé. The results obtained are so much the more remarkable, that Dr. Féréol always administered the infusion in cold water, and, as a rule, only gave one-half of the dose usually considered efficacious; that is to say, only two grammes of the leaves. Nevertheless, not only was a true salivary flux produced, but in some patients a diaphoresis, in some instances excessive. Dr. Féréol informs us that this result can be produced fifteen times, in succession, during six weeks, without any untoward consequences. He gave the jaborandi to eight patients, who furnished twenty-eight trials. Three patients submitted to its influence once only; two of them because they felt sickness going on to vomiting; and the other, a rheumatic patient, because he had a cardiac affection. Amongst the five others, one man took the jaborandi fifteen times in six weeks, at intervals of one, two, five, and six days. He was not at all distressed by it, and would willingly have persevered in taking it longer. The other patients were experimented on twice or thrice. The drug was administered as a cold infusion, in the proportion of two to four grammes of jaborandi to 250 of water. It caused nausea or vomiting in two cases only. In one of these cases, Dr. Féréol was convinced that the patient had, contrary to directions, taken food very shortly before drinking his infusion. The other case remained doubtful. The jaborandi never failed to produce copious salivation, even in patients who had only taken a small dose of it, or even in those who had vomited or only felt nausea. Its action on the perspiration was less constant and less powerful. In one case it was *nil*; in another slight; moderate in three cases; and

only really powerful in four. In one of the last category it was extremely copious, and the phenomena could be reproduced. This double action appeared from ten minutes to half an hour after the jaborandi had been taken, and lasted from one to two hours.

The influence on the pituitary membrane was three noted. The mucous membrane of the eye only appeared to be affected in one instance, and that in a doubtful manner. The examination of the urine was not altogether satisfactory; it was only carried out in five experiments on two patients; in one of them, suffering from psoriasis, on one day when the jaborandi was administered, the total amount of the urea diminished (14.30 in place of 24.30, which had been noted on the previous evening); on another occasion it increased (from 19.72 to 31.70). It increased on the days following the administration of the drug, so that in this case it appears probable that jaborandi favoured the elimination of urea. In a second case, of gout, the results were still more uncertain. The first trial gave a slight increase on the day the medicine was administered, 16.50 instead of 14.35, again increased on the following day to 21. The second trial, on the day the medicine was administered, gave a decrease (27 instead of 30), and this decrease continued during the following days, reaching 24.22. The third trial gave a diminution the day the drug was administered from 24.5 to 23, increasing on the subsequent day to 26.

Dr. Féréol agrees with Dr. Gubler, in considering jaborandi as a powerful sialogogue, and he thinks that if its sudorific properties are less continuous and powerful, they are still sufficiently important to place it above anything of the same description in the pharmacopœia. Dr. Féréol did not note any very important points in the medicinal action of this plant. However, the patient who took it fifteen times suffered no ill effects from it. He was a man fifty-seven years old, who had come into hospital for undefined pains in the lumbar region and legs; the kind of pains which are usually referred to chronic rheumatism, but which in his case may have denoted a deep-seated lesion depending on an old syphilitic affection; he was able to rise, walk about, and take his food like a man in ordinary health. Dr. Féréol first gave him some vapour-baths which agreed with him, and then replaced the baths by jaborandi, and the patient experienced a still greater improvement. After the sudoral and salivary crisis he felt freer, lighter, and more able to move about; the pains, however, returned in the night, or on the next day. Dr. Féréol did not feel justified in continuing so lowering a method of treatment, and tried iodide of potassium, which did not give the same relief as jaborandi.

In a case of acute rheumatism also, the patient, after salivation and sudation, said that he felt a lessening of his pains; and, if he had not at the same time complained of oppression and epigastric pain, which revealed an aggravation of the endocarditis from which he was suffering, Dr. Féréol would willingly have continued the administration of the medicine, in the hope of lessening the rheumatismal fluxion. In other cases, the action of the drug as a curative agent was *nil*, or even prejudicial. A gouty patient had an attack of gout a few days after the administration of the medicine. A neuropathic patient, suffering from congestive hypochondria, suicidal melancholia, and presumable beginning of general

paralysis, found his ordinary hemicranial pain redoubled in intensity.

Dr. Féréol is of opinion that, with all drawbacks, it is a great advantage to be in possession of a medicinal agent, of which the physiological effect is so immediately and clearly appreciable. It is, besides, difficult to believe that so powerful a physiological action should not be a force capable of being utilised in many cases.

Dr. Sydney Ringer and Mr. Gould publish, in the *Lancet* of January 30, the results of thirty-seven careful observations on the effects of this drug. The observations comprehended twenty on adults, whose ages varied from twenty to forty-five; and seventeen on children between three and ten years of age. To the adults sixty grains were given; to the children thirty, and sometimes sixty. These investigations have led to the detection of several new and interesting effects of jaborandi, and also to the conclusion that some of M. Robin's statements (see page 794 of the LONDON MEDICAL RECORD for 1874) are inaccurate. They show that children are very little affected by this drug. Generally thirty, sometimes sixty grains, were administered, giving both the solution and the dregs; and yet this dose often failed to produce any effect. In two cases only was the sweating abundant; in eight it was slight; in most, very slight, making the skin only a little moist; and in seven cases it excited no perspiration. Salivation was generally absent, and never more than to make the mouth rather moister than usual. There was very little flushing of the face, and this occurred only when perspiration was induced. The pulse was but slightly increased in frequency, from ten to sixteen beats, and this occurred only when the remedy acted on the skin. When the pulse was quick (and several of these children were convalescent and weak), the pulse was still less influenced, and sometimes even fell. In the earlier observations on older children, where the effects were well marked, the pulse was much more quickened. When the skin was rendered moist, the temperature generally fell, the fall varying from 0.6° to 2° Fahr. In eight of these cases it is noted that the child vomited, usually two hours after the administration of the medicine, but sometimes sooner. Occasionally the vomiting was repeated three times. When the vomiting was long delayed, none of the dregs of the medicine were rejected. Many of the children were sleepy during the stage of depression. In no instance were the bowels affected, nor did the medicine excite any cough. To sum up: in many cases the children were not at all affected in their rest; the symptoms were very slight, most strikingly so when compared with the marked effects of jaborandi on adults.

In the twenty observations made on eighteen adults, the perspiration in every case but two was most profuse, and in these exceptional instances it was free. It began in about ten minutes, and in one instance only was delayed for an hour. Salivation was absent in two cases only; in three cases it was slight; in the rest profuse, amounting in one experiment to twenty-seven ounces. In one case only the pulse was unaffected, though there was marked perspiration. In the rest the pulse was quickened from twelve to forty beats, the average being twenty beats per minute; the average increased frequency lasting two hours and a half.

The temperature was taken in nine cases, three in the axilla, the rest under the tongue. In every instance the temperature fell during the sweating, the

fall varying from 0.4° to 1.4° , the average being 0.9° , and lasting from one hour and a quarter to four hours and a half, and then becoming normal; that is, the temperature reached the point observed before the medicine was given. This was administered between 9 and 10 A.M. The average duration of the fall was three hours and a quarter. In one instance only did the temperature rise, and then only 0.4° , the rise lasting a very short time. On this point Dr. Ringer's and Mr. Gould's observations are opposed to those of M. Robin, who states that the temperature rises at first, and then remains depressed two or more days. This statement being quite at variance with their observations (for they found that in a few hours the temperature recovered itself), they noted the temperature in three men every three hours for three days before the administration of the drug, every hour during the action of the medicine, and every two hours for two days after the medicine. They found that in a few hours the temperature returned to the point noted before the drug was given, and on the two following days was the same as on the two days previous to the experiment. In one case only the flush of the face and neck was absent, and in every case save two the flush was followed by pallor and more or less depression or even prostration. In half the cases they noticed slight cough due to increased bronchial secretion; but this was always slight. In no instance did the medicine relax the bowels, so that its action on the intestinal mucous membrane must be slight. In one-half the cases the patients became decidedly sleepy, this occurring during the pallor, one, two, or three hours after the administration of the drug. A sensation of sickness, and sometimes decided nausea, occurred in two-thirds of the cases.

In several cases the sight was decidedly affected, in accordance with Mr. Martindale's observations on the effects of jaborandi. In three cases after the internal administration, the sight became decidedly affected, but the size of the pupil was unaltered. Mr. Martindale prepared an extract dissolved in glycerine for Dr. Ringer and Mr. Gould, which they introduced into one eye of thirty-one persons. In nineteen cases the pupil became decidedly contracted, the amount of contraction varying, in some being slight, in others reduced by one third, in two instances to one half. It was noticed that the pupil acted sluggishly in eleven cases. In a few hours the contracted pupil regained its natural size, but in one case the contraction was noticed twenty hours after the application. M. Robin found that the tears and nasal secretion were increased; but Dr. Ringer and Mr. Gould found in four cases only that the lacrymal and nasal secretions were increased sufficiently to attract attention. In eleven cases complaint was made of pain over the pubes, and in some instances this was severe, and was generally accompanied by a strong desire to pass urine, which afforded relief. A good deal of trembling, especially of the upper extremities, followed in two instances after the administration. This was the case with Mr. Martindale, and one man complained of much throbbing of the head the day following the experiment. Many patients complained of feeling alternately hot and cold or chilly. It will be seen that the later observations prove a marked antagonism between jaborandi and belladonna. Belladonna checks the secretion from the skin, the salivary glands, the mucous membrane of the nose, bronchial tubes, stomach and intestines, and dilates the pupils and contracts the

arterioles; jaborandi, on the other hand, increases enormously the perspiration and saliva, and in a much less degree, the secretion from the mucous membrane of the nose, the bronchial tubes, and the stomach and intestines. Belladonna excites delirium, whilst jaborandi often produces sleep. This antagonism was well displayed in four instances. On three occasions sixty grains of jaborandi were administered to three different men, and, when the perspiration and salivation were profuse, $\frac{1}{100}$ of a grain of atropia was injected subcutaneously. In five minutes the perspiration and salivation were considerably diminished, and in from ten to twelve minutes the skin was preternaturally dry and the salivation was checked, but in one case continued a little after the cessation of the perspiration. A lad was admitted into University College Hospital, poisoned by atropia, having taken one grain of the alkaloid five hours before treatment. His tongue and mouth were quite dry. A quarter of an hour after taking thirty grains of jaborandi his mouth became much less dry, and in an hour he was sweating freely, and his mouth was naturally moist. Belladonna, it is well known, arrests the secretion of milk, and Mr. Gould and Dr. Ringer were anxious to ascertain whether jaborandi was antagonistic to belladonna in respect to its influence on this secretion. They therefore administered thirty grains of jaborandi to a woman thirty-eight years old, confined of her ninth child four months previously. During suckling she had very little milk, and the quantity had become much less of late. The medicine was administered to her at 10 A.M. She had suckled her child seven hours before. In ten minutes the drug produced its usual symptoms; in half an hour her breasts, which previously were flaccid, became tumid and distended, and on pressure, yielded considerably more milk. In forty minutes the increase was still more marked, jetting forth in four or five streams. In eighty minutes the milk was less abundant, though considerably more so than before the experiment. The woman herself noticed the decided increase of her milk. To another woman, aged twenty-five, whose child was thirteen months old, two doses of thirty grains were given, as the first had no effect. She emptied her left breast every ten minutes by pressure, and each of the three first emptyings yielded 40 minims. As soon as perspiration and salivation became free, the quantity rose to 80 minims. The next time yielded 100 minims, the following 155 minims, the next time 80 minims. The salivation and perspiration at this time ceased. The next observation yielded 125 minims, the next 87 minims, the next 70 minims, and the last 40 minims. This woman, whose case is not included in those given before, complained of severe pain over the pubes, with desire to urinate, the pain immediately ceasing after micturition.

In some of their effects, however, jaborandi and belladonna agree. Thus, both flush the face and quicken the pulse; and both affect children much less than adults. Belladonna quickens the pulse by its paralyzing influence on the pneumogastric, and possibly by stimulating the sympathetic nerves. There is no evidence that jaborandi paralyzes the pneumogastric, or stimulates the sympathetics supplying the heart; but M. Robin has shown that it lessens arterial tension, probably by dilating the arterioles; and it is well known that dilating the arterioles, and thereby allowing the blood to pass more quickly from the arteries to the veins, quickens

the heart-beats. Hence it is very probable that the quickening of the pulse by jaborandi is due to its influence on the arterioles; and thus, instead of affording an instance of similarity of action between these two drugs, affords another example of their antagonism, for belladonna contracts the arterioles. While referring to the relations of these two drugs, it may be pointed out that both sometimes affect the bladder. Jaborandi causes pain over the pubes, with desire to pass urine, the pain subsiding when the bladder is emptied. These facts render it probable that jaborandi causes contraction of the bladder, for it does not augment the quantity of the secretion.

Jaborandi probably paralyses the sympathetic nerve, the effect being shown by the deep flushing of the face. M. Robin ascribes its effects to its influence on the sympathetic. But there are various reasons to doubt this conclusion. It is improbable that mere increase of blood could cause so great an increase of sweat and saliva. Belladonna flushes the face, but completely arrests the sweat. Again, it has been experimentally shown that belladonna will check the secretion from the submaxillary gland, although by irritation of the chorda tympani nerves the blood-vessels supplying the gland are dilated and full. It is true the flushing from jaborandi immediately precedes the outbreak of perspiration, but soon the flush declines, and is succeeded by marked pallor, yet the perspiration continues for hours, being often even more abundant than during the flush. To test whether the effects of jaborandi wore off by repetition, sixty grains were administered to a man on three consecutive days, and the symptoms were as marked on the third as on the first day. On each day, in a few hours, the temperature recovered from the depression, rising to the height observed before the medicine was given. This investigation would have been continued some days longer, but the man appealingly protested that he was undergoing more than his fair share of experimentation. In two other case sixty grains on two consecutive days were given, and the effects were as marked on the second as on the first. In one of these cases the temperature was observed, and on both days the temperature in a few hours recovered from its depression. These cases strikingly show the erroneusness of M. Robin's assertion that jaborandi causes a depression on the day following. On the other hand, the effects soon ceased in children, and sometimes the second dose failed to excite perspiration.

It may be suggested that the perspiration was due to the nausea and vomiting excited by the drug. Those who witnessed the effects of this medicine will certainly not ascribe them to the depression from nausea; but it may be added that the perspiration was too profuse to be due to mere depression and nausea. Moreover the perspiration occurred often some hours before the nausea or depression set in. Again, in children, though the drug in some cases caused much and repeated vomiting, there was no perspiration; moreover, in many cases, especially among adults, the full physiological effects of the drug were obtained without either nausea or depression.

Dr. Ringer and Mr. Gould tried in several cases a tincture from the leaves, and in one case an extract made from the tincture, and found these preparations as effectual as an infusion with the dregs. They found also that a strained infusion is equally efficacious with one containing the dregs; from which they conclude that the active principle is not the oil which is contained abundantly in the leaves.

In one case they gave a strained infusion of the root without effect; and in three cases an infusion made from the bark of the stem, with the dregs. The last preparation was active, though it appeared to excite more vomiting and to cause more depression than the preparations from the leaves.

Mr. John Tweedy also, in the *Lancet* of Jan. 30, gives an account of the effects of jaborandi on the eye. He remarks that, from the account given in the *Pharmaceutical Journal* of Jan. 16, by Mr. Martindale, of his personal experience of the physiological effects of jaborandi, it appeared that in addition to its diaphoretic and sialogogic actions, this drug was capable of exerting a decided influence on the accommodative apparatus of the eye.

In order to ascertain, if possible, what effect jaborandi really had upon the eye, some of the extract was placed within the conjunctiva of several patients. Of its effect on the pupil full particulars have been given above. Mr. Tweedy's attention was directed more particularly to the state of vision and the accommodation, and to the ophthalmoscopic appearances of the fundus oculi. As far as, however, the six or seven patients examined by him were concerned, he failed to find any constant or definite changes in the appearance of the eye beyond contraction of the pupil. One thing, however, was noticed—namely, that whereas the details of the fundus of the unaffected eye could be seen clearly without a lens behind the mirror of the ophthalmoscope, a weak concave lens was necessary to see clearly the details in the eye experimented on, thus showing some tension of accommodation.

Failing to elicit any definite or satisfactory information respecting the condition of the accommodation of the eye, in these patients, Mr. Tweedy determined to apply some of the extract to his left eye, and to note its effects. Accordingly at 1.30 P.M. he carefully tested the state of vision of his left eye, and found that he could read easily and clearly no. 1½ of Snellen's type from four inches (his nearest point) to twenty-two inches (his farthest point), and that $V = \frac{10}{10}$; i.e., at a distance of ten feet he could read no. 10 of Snellen's type. (Mr. Tweedy states, for the benefit of those not acquainted with Snellen's test-type, that whenever he expresses the state of vision or V by a fraction, the numerator will represent the distance at which he stood from the type, and that the denominator will represent the size of the type seen at that distance, or, more correctly, the distance at which that type makes an angle of five minutes at the optical centre of the eye.) He next made his left eye myopic by placing before it a convex lens of ten inches focal length, and found that he could see clearly and distinctly the fine vertical line of the dial he employs for estimating the degree of astigmatism, at a distance of nine inches. At 1.54 he placed within the conjunctiva a drop of the extract of jaborandi, which produced smart pain for about five minutes. After the smarting and lachrymation had ceased, he tested the state of vision of the eye, and found that at 2.0 the nearest point of distinct vision for 1½ Snellen had been approximated to three and a quarter inches, and the furthest point to twenty inches, while the fine vertical line could not be clearly seen, with the convex ten inches, at a greater distance than eight and a quarter inches. At 2.15, the nearest point for 1½ Snellen was at three inches, and the farthest at fourteen inches; and the greatest distance for the vertical line, with convex ten inches, was

eight inches. He could, at a distance of ten feet, make out some of the letters of 12 Snellen, but not even the letters of 30 Snellen were quite clearly defined. Just below the lower margins of each of the letters of 30 Snellen he could see, as it were, a fine shadow of half of each letter. There was at this time no perceptible contraction of the pupil. At 2.25 the nearest point for $1\frac{1}{2}$ Snellen was at three inches, and the farthest point at twelve inches. The left pupil was now noticed to be contracted to about half the size of the right. At 2.30 he could scarcely make out any of the letters of 15 Snellen at ten feet, and even those of 20 Snellen were not clear. He now observed that even those letters that he could make out appeared much smaller when viewed with the left eye than with the right, and that with the left eye they seemed to be at a greater distance from him than with the right. At 2.35 the nearest point for $1\frac{1}{2}$ Snellen remained at three inches, but the farthest point had receded to fifteen and a-half inches. The inequality of the pupil was *in statu quo*. At 2.40 he noticed that all objects, but especially distant ones, appeared much bolder, brighter, and better defined with his right eye than with the left, although under ordinary circumstances the vision of his left eye is more acute than that of the right. There appeared to be, in addition to the short-sightedness of the left eye, an actual impairment in the sensibility of the retina, producing imperfect amblyopia. At 2.50 the nearest point for $1\frac{1}{2}$ Snellen was at three and a quarter inches, and the farthest at sixteen inches. The fine vertical line could now be clearly seen with the convex ten at eight inches and one-eighth of an inch. At 2.55, $V = \frac{10}{12}$, and he could now decipher some of the letters of no. 10, all the letters being clearer and better defined. The inequality of the pupils, however, remained the same. At three, he could read even no. 8 Snellen at ten feet, and there was but little appreciable difference in the apparent size or distance of the letters when viewed with the right and left eyes alternately. The left pupil had relaxed a little, but was still smaller than the right. At 3.10 P.M. the nearest point for $1\frac{1}{2}$ Snellen was three and three-quarter inches, and the farthest point at eighteen inches. The vertical line could now be seen at nine inches with convex ten inches. At 3.30 the vision of the left eye had resumed its normal state, but it was not till after four o'clock that the left pupil had thoroughly relaxed.

From these facts he concludes that jaborandi locally applied to the eye causes (1) contraction of the pupil; (2) tension of the accommodative apparatus of the eye, with approximation of the nearest and furthest points of distinct vision; (3) amblyopic impairment of vision from diminished sensibility of the retina. These effects, however, do not last long. In Mr. Tweedy's case the approximation of the near and far points of distinct vision had declared itself in a quarter of an hour, and reached its maximum in about forty minutes. It then gradually subsided, and had entirely passed off, and the eye had resumed its normal state in about an hour and a half.

PATHOLOGY.

KLOB ON A PECULIAR AFFECTION OF THE BOWELS, LYMPHATIC GLANDS, AND LACTEALS.—The *Allgemeine Wiener Medicinische Zeitung* for December 15, 1874, contains a report of a paper read

by Professor Klob on December 11 at the Imperial Gesellschaft der Aerzte. He says he has met with five cases of an affection hitherto undescribed, although some analogous cases are recorded. In his cases, persons apparently healthy were attacked with symptoms which gave rise to the suspicion that they were suffering from typhoid fever. In one case the diagnosis fluctuated between this and enteritis. In another, acute peritonitis of a rapid kind was diagnosed. Of the five cases, four were brought into the hospital in a comatose and dying condition, and only one, a woman aged thirty-three, was one day under observation. Her symptoms consisted of violent pains in the hypogastric region, and the rapid occurrence of somnolence and coma with vomiting. There was a high temperature (103.6° Fahr.), and rapid pulse, becoming uncountable and thready. The patient died comatose.

Post mortem examination showed the following appearances. The body was strikingly pale. There were no changes in the nervous centres, and only accidental changes in the lungs, such as oedema; there were no particular cardiac changes; though in some cases the heart was much softened, this was not constant. The blood had lost its beautiful red colour, and had a livid hue. Microscopic examination showed increase of its colourless corpuscles. The liver was soft, in one case chocolate-brown. The spleen in all the cases was about half as large again as normal, though less than in typhoid fever. The stomach and valvulae conniventes of the jejunum showed striking changes. There were hæmorrhagic erosions in the former. Some of the transverse folds of the jejunum were swollen in the middle. This tumefaction was fairly resistant, and tolerably hard. The hardness was easily seen to be due to infiltration, beginning at the base of the fold, and extending into it. This infiltration consisted of blood. Sometimes just at the margin of the fold there was a slight loss of substance, covered with a small necrotic scab. This yellow, or yellowish-brown scab, was surrounded by a dark red colour. The adjacent fold had similar appearances, and in different degrees these were repeated, so that the further the bowel was examined in a descending direction, the less infiltration there was, the ileum being quite free from any such changes. The kidneys were always pale. The next remarkable appearances were found in the mesenteric glands belonging to the jejunum; they were as big as hazel-nuts, dark red, and had their capsules distended and separated from their substance by extravasations; and their parenchyma itself was infiltrated—as were their lymphatics, and the thoracic duct itself—with blood. Microscopic examination showed simple hyperplasia of the lymphatics, and adenoid formation in the jejunum.

To what category, says Dr. Klob, shall these cases be referred? The similarity of their symptoms and morbid anatomy leads one to infer that the affection is a specific one. We must not forget Virchow's leukæmia, and Wunderlich's pseudo-leukæmia; in the latter the lymphatic glands swell, and the patient becomes exhausted without any changes in the blood—the lymphatic glands exhibit simple hyperplasia. Langhans and Virchow both divide malignant lymphosarcomata into hard and soft. The former asserts that a certain malignity must often be attributed to quite simple hyperplastic conditions of lymphatic glands—and it seems that the soft lymphosarcomata run a less rapid course than the hard ones. Langhans points to metastases

as the proof of their malignity. The cases of pseudo-leukæmia do agree in many respects with those recorded above. But the rapid course, without metastases, the decided tendency to hæmorrhage and necrosis, distinguish these cases from pseudo-leukæmia, which is always more chronic in its course. Enteric fever, which is always a lymphomatosis, must next be considered. But these cases lacked most of the striking symptoms of typhoid fever—in which there is less tendency to hæmorrhage, if we except the epistaxis sometimes found in its early period, and the intestinal hæmorrhages sometimes found towards its close. The author considered these cases to belong to a group intermediate between pseudoleukæmia on the one hand, and typhoid fever on the other. Another case was adduced, in which the occurrence of cicatrices led to the belief that these changes had been previously passed through.

Professor Patruban, in commending the paper, pointed out how deficient our knowledge of the pathological anatomy of the lymphatic system is. He thought the appearances named might be explained by the tenderness of the stroma, and the thinness of the venous coats of the mesenteric glands compared with other lymphatic glands. The splenic enlargement is explained by the well-known functional homology of these organs—the lymphatics being found enlarged in cases in which the spleen is removed from animals. The permeability of the glands is much affected by various diseases, such as tuberculosis, cancer, melanosis, sarcomata, enteric fever, etc., so that it could often be predicted that such and such glands would bear injection, while others would not allow it.

W. BATHURST WOODMAN, M.D.

GHÉRINI ON A DEFORMITY BY EXCESS OF THE HANDS AND FEET.—Dr. A. Ghérini describes in the *Gazzetta Medica Italiana-Lombardia* for December 19, 1874, the appearances presented in a case of polydactylism. He refers briefly to Dr. Fort's description of the anomaly in his work on congenital and acquired deformities of the digits (Paris, 1869); to the case of a child observed by Saviard in the Hôtel Dieu of Paris, in which there were ten digits on each hand and each foot; to one described by Rueff, where each hand and foot had twelve digits; and to one observed by Voigt, where there were thirteen fingers on each hand, and twelve toes on each foot.

In Dr. Ghérini's case, the subject is a male child, aged three, one of twins; the other is a female, and is well formed. The parents are healthy, and there is no history of congenital defects of any kind in their families. The child is well developed and intelligent. His right hand has six metacarpal bones, each of which supports a finger with three phalanges; the thumb is absent. The first and sixth digits completely represent little fingers; while the two central digits, which are of equal length and size, resemble middle fingers. The three fingers on the radial side are completely united; the next is free; and the fifth and sixth (on the ulnar side) are joined. The carpus appears to be normal; the palm is large, but of regular shape; the wrist-joint is quite free; and the forearm is natural. The left hand resembles the right, but there is union between all the fingers except the third and fourth. The fingers can be flexed and extended at will, either all together or each series of

three separately; and the fourth finger of the right hand can also be bent and extended separately.

Each foot has nine toes. The middle one resembles the great toe in having only two phalangeal bones; it is free, and is larger than an ordinary great toe. The four toes on each side of it are united two and two. The outermost digits resemble the little toe. Nine metatarsal bones can be readily counted. The tarsus is very convex and wide, giving the idea that it contains a double number of component bones. Viewed from the plantar surface, each foot presents a rectangular plane surface wider near the toes than near the heel. Posteriorly, there is a longitudinal cutaneous sulcus, passing into the subjacent osseous structure, and dividing this to some extent into two unequal parts, of which the outer one is the larger. Each tendo Achillis is inserted into the larger portion of the os calcis. Extension and flexion of the foot on the leg are imperfect; hence the foot is always held at a right angle to the leg. The right leg is shorter than the left, and presents a slight concavity on the shin; the patella is dislocated outwards; the anterior superior spine of the ilium is lower on the right side than on the left, in consequence of the shortness of the leg. The flexor and extensor muscles appear to be single, the tendinous portion alone undergoing subdivision. In walking, the child supports himself and moves fairly well; but limps in consequence of the shortness of the right leg.

Dr. Ghérini believes that the most plausible explanation of the deformity is the partial fusion of embryonic germs.

A. HENRY, M.D.

RECENT PAPERS.

Cardiac Dilatation. By Dr. Loumis. (*New York Medical Record*, January 16.)

Multiple Abdominal Lymphoma. By Dr. Buresi. (*Lo Sperimentale*, January, 1875.)

MEDICINE.

KNECHT ON A SINGULAR NEUROSIS.—Dr. Knecht (*Berliner Klinische Wochenschrift*, October 26, 1874) relates the following case which he considers, from its characters and complications, to be unique.

The patient, a female, aged twenty-five years, was committed to the House of Correction, in Waldheim, in May 1873. At that time there was a slight want of symmetry in her appearance, and slight spinal curvature toward the right side. She had a slight cough. Nothing morbid could be detected in the lungs or heart, although she affirmed that she expectorated blood occasionally. She stated that she had never been seriously ill, and had not suffered from nervous affections. She knew nothing of her family history, as she had been estranged from her relations from childhood. In May and June of the previous year she had suffered from cramps, palpitation of the heart, and spitting of blood. In July she had a maniacal attack which lasted for many days. During a period of repose after this attack, the spitting of blood continued; there was, however, no evidence that the blood came from the lungs. About the same time, shortly before the catamenial flux, she experienced some ischuria from a spasmodic contraction of the urethra. For some weeks she remained the same, except that she was highly excitable, and phrenzy occurred on the slightest provocation. Soon afterwards she began to

complain of constriction of the œsophagus, occurring about the catamenial periods. In the month of September the temperature, which had previously been normal, rose to 40° Cent. (104° Fahr.), with occasional remissions of one or two degrees. On the 22nd of the same month, after a sleepless night, and the usual attack of cramps, the temperature was found to be at 40° Cent. (104° Fahr.), the skin of a bright scarlet colour, bathed in perspiration, and her whole frame in a state of tremor. This was concurrent with a vibratile movement of the thoracic walls, most marked in the fifth intercostal space. The point of impulse of the heart could not be distinguished, but over the cardiac region only, a diffused rhythmical movement could be felt. The most remarkable phenomenon connected with this part of the case was, that to those standing at the bedside, the heart's pulsations, about 170 in the minute, were audible at the distance of a mètre, like the ticking of a watch. The respiratory movements exceeded the normal number by from twenty to thirty. The carotid and temporal pulsations were distinctly visible. Mayer's sphygmograph showed a dicrotic pulse. This attack of tremor lasted about an hour; the violent action of the heart gradually subsided; but the profuse perspiration continued all day. The urine, voided after the attack, was scanty and contained blood-corpuscles. These seizures recurred daily, gradually becoming less severe. Auscultation found a considerably enlarged heart, exceeding much its ordinary limits. The later attacks were associated with tympanitis. The febrile condition continued. On one occasion, September 26, the temperature reached 42° Cent. (107·6° Fahr.).

On October 9 the temperature fell, and a great amelioration of all the symptoms followed. On the 15th, in consequence of mental excitement, there was a relapse, which continued until the 25th. These fluctuations were repeated until the end of December, 1873, when a discharge of purulent and sanguineous matter took place from the left ear.

At the beginning of 1874 a fresh symptom appeared, viz., a defect in vision, so that she could not count fingers at a distance of one mètre, there being double vision and photophobia. The pupils, somewhat dilated, were sensitive to light. In consequence of the resistance of the patient, a more minute examination could not be made. In two or three days it passed off.

The patient lost flesh, and became weak in the lower extremities, which also became slightly contracted. From the middle of January to February 8 a remission of all the symptoms occurred. From that time there occurred a relapse, with aggravation of all the morbid phenomena. It was observed that flushes of red colour occurred in the courses of certain nerves, e.g. the lower intercostal, the lumbar, and cutaneous of the thigh; sometimes on one side, sometimes on the other. Concurrently with menstruation, on March 12, there was another remission; from this time to the end of April, the symptoms had returned with greatly increased severity. Soon after this time, in consequence of her discharge from the house of correction, Dr. Knecht lost sight of her. She had latterly increased in weight; the skin had resumed its normal aspect; the contraction of the extremities had diminished.

The diagnosis suggested by the author is, an inflammatory condition of the spinal cord, resembling those cases described by Krishaber as 'neuropathie cerebro-cardiaque.' [It is much to be regretted, in

the cause of science, that this damsel's sentence of imprisonment had not been longer.—*Rep.*]

W. B. KESTEVEN.

BÉHIER ON INSANITY CONSECUTIVE ON TYPHOID FEVER.—Dr. Béhier has lately lectured on this subject, which is a very interesting one, both from a medical point of view and from its bearings on forensic medicine. It was brought under his notice by the presence in his wards of several examples of this condition. One of the patients was a female servant, aged twenty-two, who was brought in the hospital on September 4, on the eighth day after she was taken ill. She presented all the symptoms of undoubted typhoid fever; prostration, buzzing in the ears, vertigo, headache, diarrhoea, with rumblings in the right iliac fossa, swellings of the abdomen, and later on, roseola. The temperature was 104·36° Fahr. She had a dry tongue, red at the point and edges, and white in the centre; and also delirium. This delirium had shown itself under the influence of strong excitement, three days before the patient was brought to the hospital. It had not the characteristics of ordinary typhic subdelirium; but was a talkative delirium, with much agitation, mixed up with lively and constantly shifting ideas. Two days after the patient came into hospital—the tenth day of her illness—constipation was noted; which clearly arose from cerebral influence. On the thirteenth day some of the gastric and abdominal symptoms were improved, but the maniacal form of delirium continued with much agitation, incoherence, and hallucinations of the sight and hearing. On the following day the patient was better, and the delirium was quieted; but on October 8, the twenty-first day of the fever, a fresh crisis supervened under the influence of a new cause of excitement. Finally, on the 16th, the twenty-ninth day, after a period of calm, accompanied by weakness and a state of semi-imbecility, the agitation returned with fever (pulse 112, and temperature 102·9° Fahr.), leaving a condition of true imbecility, with hallucinations of sight and hearing and incoordinate movements. On November 30, one month after this last crisis, and two months from the commencement of the attack, the patient gradually recovered her health. But although every pathological trouble, every morbid condition had disappeared, her intelligence remained weakened, and she was in a kind of infantile condition.

The insanity of typhoid fever patients does not always show itself in this acute form at first. It sometimes commences by imbecility. This was the case with another patient in the ward, who without ever having had violent delirium during the evolution of her attack of typhoid fever, subsequently fell into a condition of hebétude or intellectual weakness without delirium, lasting during five months. The following case of insanity consequent upon typhoid fever is certainly a very remarkable one, both from its peculiar form and its complete cure at the end of three years.

A woman aged twenty-three, entered the Hôtel Dieu on November 20, 1871, the fifteenth day of an attack of typhoid fever. Her pulse then marked 64. The temperature was 96·8° to 98·6° Fahr. An anæmic souffle was discovered at the base of the heart. The only phenomena remarked, during the early days of the patient's stay in hospital, were headache, sleeplessness, and constipation (from the eighteenth to the twenty-second day). On the twenty-second day she

complained of distaste for food and refused to take any; her tongue was red and sore. On the twenty-second day, symptoms of hypochondria showed themselves. For the first time she talked of dying, and refused the hospital diet, probably having the notion that it was poisoned, though she pretended that the bad state of her teeth prevented her eating. The little she took brought on vomitings. She remained usually in an inert condition. On the thirty-first day her sight was affected. On January 18, 1872, acute mania showed itself. She got up half-dressed and left the ward, to which she could only be brought back by force. The insomnia and the vomitings of food continued, and there was cutaneous insensibility. Some soup was injected into the stomach by the oesophageal tube. Some days afterwards, vertigo came on. Paralysis of the bladder was discovered on February 4, and insensibility to contact and to external temperature in April of the same year. At this stage the patient made violent scenes every day, and reproached M. Béhier with wishing to kill her. On May 16 she suffered from great general exhaustion, and complained of pains in the head, with a sensation of heat and a painful feeling in the region of the stomach; the respiration was of a sighing character. She often lost recollection of the most recent events, did not know her own age nor that of her child, and gave such unmistakable signs of insanity that Dr. Béhier signed the certificate for her removal to a lunatic asylum. She was lost sight of for a long time, until she came to see M. Béhier, on December 4 last. She had been cured in the asylum, and at the present time only suffered from a certain amount of weakness of the sight and some sensations of formication in the fingers, with some localised insensibility; but her intellectual and emotional faculties had returned to her. She took care of and brought up her child, and testified gratitude for the attention she received in hospital.

BURCHARD ON WHOOPING COUGH.—Dr. Burchard, of Berlin, has published in the *Deutsche Klinik*, 1874, no. 41, an account of the manner in which, during the summer of 1873, he used the vapours of a solution containing from $1\frac{1}{2}$ to 2 per cent. of carbolic acid, for the treatment of this malady. The vapour is produced by boiling the above solution in the boiler of a Siegle's or some similar apparatus, and is directed three times a day into the widely opened mouth, at a distance of about twenty centimetres from the extremity of the tube conducting the vapour. The important matter is for the patient to draw a deep breath, so that the utmost amount of vapour may penetrate into the respiratory organs. The author succeeded with this plan with little children two years old, and did not meet with any marked resistance. The result was very favourable; the violent paroxysm of cough disappeared in two or three days, and the whooping cough was succeeded by a simple catarrh in the space of about eight days. This kind of medication often succeeds in a remarkable manner in catarrhal affections of the vocal cords, and proves equally useful in chronic catarrh of the trachea, especially when the expectoration takes on a putrid character, and presents the yellow tint peculiar to the production of fungi.

RECENT PAPERS.

Remarks on Tropical Fevers. By W. T. Black. (*British Medical Journal*, January 23.)

On Ischæmic Paraplegia treated by Hydrotherapy. By Dr. Paul Delmas. (*Le Bourdeaux Médical*, January 24.)
The Medical Expert and Medical Evidence. By Dr. M. A. McClelland. (*Chicago Medical Journal*, January, 1875.)
On Postparalytic Chorea. By M. Charcot. (*Le Progrès Médical*, January 23, 1875.)

SURGERY.

STETTER ON RESECTION OF THE INFERIOR DENTAL NERVE.—Dr. Stetter (*Berliner Klinische Wochenschrift*, no. ii. 1875) reports a case in which Prof. Schoenborn, of Königsberg, removed a considerable portion of the inferior dental nerve by first dividing it in the mouth of the patient, and then by removing part of the anterior wall of the dental canal. The patient, who was a woman aged sixty-four, had lost most of her teeth before the age of thirty, when, in consequence of fright, she suffered during a period of three months from occasional attacks of severe cramp and painful convulsive movements of the limbs. When forty-eight years of age, she was again much frightened by the attack of a dog, and from that time suffered from frequently repeated attacks of spasm and pain on the left side of the face, the intervals between these attacks having, up to the time of her admission, become more and more frequent. When first seen by Professor Schoenborn, the patient, who was much emaciated, complained of very severe radiating pains on the left side of the face, especially about the lower jaw. The intervals between the attacks varied in duration from five minutes to a very few seconds, and during each attack the affected side of the face was fixed by muscular spasm. The woman was able to ease the pain by simultaneous pressure with her fingers on the inner surface of the lower jaw in the region of the aperture of the dental canal, and on the outer surface of the bone. After the patient had been treated for two weeks by injections of morphia without any good result, Professor Schoenborn decided to have recourse to neurectomy. As the patient referred the most intense pain to the region of the inferior dental canal, it was held that the cause of the affection might probably be found in the portion of nerve which was contained therein, and that a cure might be effected, or at least considerable relief afforded, by removing that portion. With this object in view, Professor Schoenborn first divided the inferior dental nerve in the mouth near the aperture of the canal according to Paravicini's method, then cut down upon the front of the lower jaw and removed with the chisel a portion of the anterior wall of the canal, and finally pulled out and excised a portion, about six centimetres in length, of the inferior dental nerve. In the first stage of the operation an incision was carried along the inner surface of the lower jaw over the course of the inferior dental canal from the aperture downwards and inwards, and afterwards for a short distance upwards towards the neck of the bone. The mucous membrane and periosteum were cut through and elevated along the whole of this wound, and the loose cellular tissue between the internal pterygoid muscle and the ramus of the jaw partly pressed on one side by the fingers and partly removed. After some slight bleeding had been suppressed, the lingual nerve could be seen, and behind it, on the outer surface of the internal pterygoid muscle, the inferior dental nerve and artery imbedded in cellular tissue. The lingual

nerve having been drawn aside by a small blunt hook, the inferior dental nerve was carefully dissected away from the artery and enclosed near the aperture by a ligature, the two ends of which were brought out of the mouth. The anterior wall of the canal lining these, in the second stage of the operation, was chiselled away over an extent of one centimètre and a half; the nerve was divided as far as possible above the aperture of the inferior dental canal, and then dragged out through the external wound. The dissection of the parts within the mouth and the division of the nerve were much facilitated in this case by the absence of teeth and the absorption of the alveolar process of the lower jaw, the conditions being similar to those met with in infants and very old people, and generally in edentulous subjects. On the first and second days after the operation there was no relief; on the third and fourth days the neuralgic pains were not quite so severe, and on the fifth day they ceased altogether. When seen six months after the operation, the patient was quite free from pain, and stated that she had not suffered from any relapse.

Dr. Stetter holds that Paravicini's method of dividing the inferior dental nerve within the mouth is to be preferred to the subcutaneous method, since in practising the latter it is difficult to avoid wounding the lingual nerve or the inferior dental artery. In conclusion, he argues that neurectomy in cases of neuralgia, though very uncertain in its results, may be considered a justifiable operation when applied as a last resource for the relief of very severe and intractable forms of this affection.

W. JOHNSON SMITH.

CUTTER ON THE ACTION OF FLOUR ON THE TEETH.—In an article entitled 'Does the Use of Flour promote Decay of Teeth?' in the *Boston Journal of Chemistry*, Dr. Ephraim Cutter discusses the question whether the prevalence of caries of the teeth is due to the use of wheat flour and to the disuse of whole-grain flour, and concludes in favour of the more extended use of whole grain as an article of diet for children, but at the same time urges the necessity of more extended experiments in regard to the influence of whole grains of wheat-meal, oatmeal, corn-meal, beans, etc.

[It has long been noted in this country that in those districts where the use of oatmeal (in place of wheat flour) prevails, we find children and adults with the best developed teeth and jaws; and so well recognised is the influence of oatmeal-diet upon the teeth, that many practitioners order its use as an article of daily diet for children, in cases where the dentition seems likely to be either retarded or imperfect.—*Rep.*] OAKLEY COLES.

RECENT PAPERS.

Ligature of the Internal Iliac Artery for a Wound of a Branch of the Gluteal. By Dr. Landi. (*Lo Sperimentale*, January, 1875.)

Tracheotomy for a Foreign Body in the Air-Passages. By Dr. Marcacci. (*Lo Sperimentale*, January, 1875.)

Case of Traumatic Aphasia. By Dr. L. Alboni. (*Lo Sperimentale*, January, 1875.)

TOXICOLOGY.

BRUGLOCHER AND EWALD ON POISONING BY NITRO-BENZIN, OR ESSENCE OF MIRBANE.—Dr. Bruglocher's case will be found in no. 1 of the

(Munich) *Aerztliches Intelligenz-Blatt* (22 Jahrg. January 5, 1875); Ewald's two cases in the *Berliner Klinische Wochenschrift* for January 4, 1875.

The former relates to a working soap-boiler, aged forty, who took five or six drachms of nitro-benzin, with about twenty times its bulk of spirit. He took part at 2 A.M., the rest at 7 P.M., on December 16, 1874. Loquacity was followed by drowsiness, which soon merged into complete insensibility. He was found quite unconscious at 7.30 P.M. At 8.30, when brought to the infirmary, all his limbs were paralysed, as in deep chloroform narcosis; the jaw was clenched tightly, and was opened with great difficulty. The skin was cyanotic; the lips of a violet blue. He foamed at the mouth. His breathing was stertorous and superficial. The pulse was scarcely to be felt. The heart's impulse and sounds were extremely weak. The surface was cold. The pupils were moderately dilated, insensible to light. The urine and fæces were passed involuntarily. He smelt strongly of bitter almonds. Vigorous cold affusion slightly deepened his inspirations, but did not rouse him. Then the stomach-pump was used; the fluid withdrawn smelt strong of bitter almonds. Three-fourths of a pint of water, with ten drops of strong solution of ammonia, were injected; also some strong coffee. At 9.30 the pulse and heart sounds were a little stronger; the mouth more easily opened. At 1 A.M. (17th) he seemed conscious, but his first brief replies to questions were at 5 A.M. At 10 A.M. he was still but half-conscious, and complained of pains in his pharynx (? from the stomach-pump). The odour of bitter almonds was still evident. In the course of the afternoon he perfectly recovered consciousness. On the 19th he was discharged cured. Bruglocher remarks that nitro-benzin, nitro-benzol, or nitro-benzid, a derivation of benzol, having the formula $C_{12}H_5NO_4$ [or $C_6H_5NO_2$], is an oily fluid, soluble in alcohol, not in water, smelling like bitter almonds, and much used in perfumery, etc., instead of the latter. It is known in trade as mirbane oil, essence of mirbane, or artificial oil of bitter almonds. Like other nitrites of the carbo-hydrates, nitro-benzin acts immediately upon the blood. All the symptoms can be easily explained by the saturation of the nervous centres with altered nutrient materials. According to W. Starkow's spectrum-analyses (Virchow's *Archiv*, vol. lii.) the blood of animals poisoned with bi-nitro-benzin shows the bands of hæmatin in an acid solution, as well as those of oxy-hæmoglobin. With nitro-benzin, however, these bands only occur in blood some hours after being taken from the body. Dr. Kreuser, of Stuttgart, gives the following *résumé* of the symptoms in nitro-benzin poisoning. 1. It acts as a direct irritant on the lips, tongue, and œsophagus, without implicating the mucous membrane of the stomach. In the case given above, the dilution with alcohol prevented this. 2. There is a period of latency of some hours, due to very slow absorption, the essence not being soluble in water. In one of Kreuser's cases, the vomit eight hours after taking the poison showed the oily fluid floating on it, and even the excreta had the odour. [In Ewald's cases there were, perhaps about an hour before unconsciousness, slight headache, and drowsiness, occurring in half to three quarters of an hour.] In the case above there was also a period of latency, though his excitement was probably due to the alcohol. 3. There is a remarkably strong smell of bitter almonds. [All the cases exhibit this. See the

remarks on urine, etc.] 4. Clonic and tonic spasms, observed in other cases, were wanting in this Schwabach soap-boiler; but he had strongly marked trismus. [The severer case of Ewald's had tonic spasms of the upper extremities; and afterwards a sort of passive but rigid flexion of the elbow-joints and fingers, without convulsions.] The rest of the man's muscles were as in deep chloroform narcosis. In the bath he doubled up like a fresh corpse. As regards treatment, the use of the stomach-pump was probably the most useful means, because of the slow solubility and absorption of the poison. Cold affusion was perhaps of use in exciting deeper inspirations.

Ewald has called attention in no. 52 of the *Centralblatt für die Medicinischen Wissenschaften*, for 1873, to his discovery that a large quantity of sugar can be detected in the urine of dogs and rabbits poisoned with nitro-benzin. He gives some details of two cases of poisoning by this substance in young women, aged twenty-two and eighteen years respectively. The first took about a drachm of commercial bitter almond oil at about 3 P.M. (February 16, 1873); the second about two and a-half drachms, at 9 A.M. (December 5, 1874). Both recovered, after about five and twelve hours' insensibility, and a further period of partial coma; the sequelæ being only slight headaches. Both cases were admitted to Dr. Frerichs' wards. It can scarcely be said that sugar was detected in the urine of either. The first urine passed in case no. 1 was about nine ounces in quantity, brownish-red, slightly turbid, free from albumen, of specific gravity of 1.020, and smelling strongly of bitter almonds. It held a large quantity of cupric sulphate and potash in solution, but did not reduce the copper [? glycogen, glycocoll, or inosite]. The urine of the second case was twice drawn off by catheter (six and eight hours afterwards) and a third sample passed spontaneously was also examined. The first samples equalled about half a pint together, with a specific gravity of 1.017. The next was similar; the quantity is not stated. It partially reduced, but did not decolorise, Trommer's solution, and failed to show appreciable amount of sugar by the polarising apparatus. The blood, taken by cupping, was brownish in colour, but gave no special spectrum-bands. Both patients were cyanotic—like a case of severe emphysema [not the tunica albuginea as in Müller's case]. There was an intense smell of the poison in the breath, vomit, etc., for three days. Even the urine smelt like it. Pulse, respiration, and temperature were but slightly affected [pulse 124 and 108, temperature 100.8° and 97.6° degrees, respiration 18 and 22 respectively]. The treatment consisted of analeptics in the slighter case, and of the stomach-pump in the severer one, with subcutaneous injections of camphor (dose not stated). It is thus evident that even the worst of these cases was comparatively mild. But the cases of Kreuser, Mackenzie, etc., show plainly how even apparently mild cases may rapidly terminate in death. Ewald says that, besides the symptoms mentioned by Kreuser (see above), we may have head-ache, stupor, vomiting, and extreme coma. Accelerated respiration, rapidity of pulse, rise of temperature, mydriasis, convulsions, rolling of eyeballs, sweatings, œdema of the face, involuntary stools, may or may not appear, and none of them are really prognostic, since recovery has taken place after everyone of them. The most striking *post mortem* phenomena are (says Ewald) the powerful odour of bitter

almonds, punctiform ecchymoses, and circumscribed brownish red or rusty coloration of the mucous membrane of the stomach, much hyperæmia, and strong *post mortem* rigidity. There seems no profound anatomical change in the intestinal tract, and the smell seems almost the only essential phenomenon. Ewald remarks that any convenient tube, such as that of a gas-lamp, may be used to wash out the stomach. [*Irish Hospital Gazette*, no. 16, August 15, 1874.] Next to this, subcutaneous injection of camphor or ether, inhalation of ammonia, warm frictions, cutaneous irritants, cold douche on the head and back should be used as in Short's case. Afterwards wine, coffee, tea, etc., may be introduced into the stomach. Ewald justly points out that it is absurd to forbid the sale of true essential oil of bitter almonds, and yet permit the free sale of this artificial and almost equally dangerous product. He gives the following references: Streeter, *Medical Times and Gazette*, December 16, 1854; Ellis, *Lancet*, February 16, 1863; Taylor, *Guy's Hospital Reports*, 3rd series, p. 173; Husband, *Lancet*, July 19, 1863, p. 167; Schenk, *Vierteljahrsschrift für Gerichtliche Med.* new series, vol. v., 2, p. 321; Müller, *ibid.* p. 341; Riefkohl, *Deutsche Klinik*, vol. xviii. p. 169; Mackenzie, *Medical Times and Gazette*, March 10, 1862; Letheby, *British and Foreign Medical and Surgical Review*, October, 1863; Idem, in *London Hospital Reports*, 1865; Barkley, *Lancet*, March 10, 1866; Kreuser, *Württemberg Medical Correspondenzblatt*, vol. xxxvii; Bahrdt, *Archiv der Heilkunde*, 1871, p. 320; Short, *British Medical Journal*, Aug. 15, 1868; Clifton Wing, *Boston Medical and Surgical Journal*, January, 1873; Helbig, *Deutsche milit. ärztl. Zeitung*, i. p. 36; Svederus, *Bruska* (? Svenska) *Läkarsällskapets Förhandlingar*, 1873, p. 128; Treulich, *Wiener Medizin. Presse*, 1870, p. 224; Lehmann, *Vierteljahrsschrift für Gerichtliche Med.* N.S., vol. xiii. He states that he cannot find any cases in French, after a careful search. [The reporter has found the following additional references. Casper's *Vierteljahrsschrift für Gerichtliche Med.*, vol. xvi. i. p. 1; Canstatt, vol. vii. p. 16.; New Sydenham Society's translation of Casper's *Forensic Medicine*, vol. ii. p. 50; Barker, *British Medical Journal*, vol. ii. 1861, p. 655; Letheby, *Pharmaceutical Journal*, vol. v. p. 130. Bahrdt's case (quoted above) may also be found summarised in the New Sydenham Society's *Biennial Retrospect*, for 1871-2, p. 449; Taylor's *Medical Jurisprudence*, 2nd edition, vol. i. p. 366. Why Ewald quarrels with Letheby, and credits him with only a single case, is not clear, unless he has never read his papers. His own discovery of sugar in the urine of animals thus poisoned, appears to the reporter to be valueless in a medico-legal point of view, since chloral-hydrate, chloroform, and a host of other substances which affect respiration, and even partial suffocation, by mechanical means, are all known to frequently produce glycosuria.—*Rep.*]

W. BATHURST WOODMAN, M.D.

MISCELLANY.

At the meeting of the Paris Academy of Medicine on January 19, the secretary announced that the Minister of the Interior had placed 4,000 francs at the disposal of the Academy. It is proposed to award 2,000 francs from this sum to the best paper on 'The Hygiene of Infants,'

the remaining portion to be used for the expenses of publishing the prize memoir and to give small prizes to other papers deemed worthy of such encouragement.

CHINCHONA IN INDIA.—The introduction of the cultivation of the chinchona plant into India has proved most successful. It was commenced in India in 1861. In 1874 there were 2,649,033 plants on the Government plantations of the Nilgiri Hills alone; besides private plantations, among which 234,531 plants and 469½ ounces of seeds have been distributed. In the same year 91,773 pounds of bark were supplied to the manufactory, for the preparation of quinine, in a cheap form, for use in India, the value of which was 2,294*l.*; and 1,181 cases of East Indian and Ceylon bark were sold in the London market. The tallest chinchona tree on the Nilgiri Hills is now thirty-two feet high, with a girth of twenty-eight and a half inches. It will be readily perceived that the beneficial results of bringing quinine and the other febrifuge alkaloids in the chinchona bark within the reach of the people of India can scarcely be overrated.

THE EXTREMES OF TEMPERATURE.—Up to the present day the maximum degree of cold ever recorded was on January 4 last, at Jakoutsch in Eastern Siberia. On that day the thermometer, as observed by a Russian merchant named Severow, registered $-59^{\circ}50'$ Reaumur ($-101^{\circ}8'$ Fahr.). A staff-surgeon affirms that he even noted one day a cold of -63° Reaumur ($-109^{\circ}75'$ Fahr.) in the same country, where the mercury is sometimes frozen for months together. At these times, according to Middendorf, the Siberian traveller, mercury becomes solidified and can be worked with a hammer like lead; iron becomes brittle, axes break like glass when they are used, it is impossible to chop wood; even fire itself seems to freeze, for the gases which feed it lose their heat. During the winter of 1819–20 it was impossible to go out without a mask, under risk of losing the nose or ears. In contrast to this low temperature are the extreme degrees of heat experienced in the north and east of the Sahara, at the foot of the Himalayas, in the valley of the Ganges, and on the interminable steppes of Afghanistan and Bucharia. Here the maximum heat observed has been 55° Reaumur ($155^{\circ}75'$ Fahr.) in the shade, and 70° Reaumur ($189^{\circ}5'$ Fahr.) in the sun. The Afghanisthan proverb says, 'Why, Allah, hast thou created hell? Hadst thou not already created Ghaznan?' Thus between the extreme heat in the sun in some regions and the extreme cold in others, the difference is from 125° to 130° Reaumur (281° to 292° Fahr.), that is to say 25° to 30° Reaumur, more than the scale which connects melting ice with boiling water. But, notwithstanding this extreme difference, man, by the aid of the appliances invented and popularised by science, is enabled to support the two extremes.

STATISTICS OF SUICIDE IN PRUSSIA.—The statistical office of Prussia has just published the following table of the suicides in that country, from 1869 to 1872, drawn up with characteristic minuteness of detail:—

	Men.	Women.	Total.
1869 . . .	2,570 .	616 .	3,186
1870 . . .	2,334 .	623 .	2,953
1871 . . .	2,183 .	540 .	2,723
1872 . . .	2,363 .	587 .	2,950

Suicide amongst men was on an average four times as frequent as amongst women. With regard to age, the tendency increases with age in men. The greatest number kill themselves between from ten to fifteen years of age, and between fifty and sixty. In women the tendency to suicide is most marked from fifteen to twenty years of age, and when they have passed their seventeenth year. Married people contributed 452 suicides per 1,000; unmarried persons above fifteen years of age, 339 in the 1,000; the remaining portion belonged to the category of widows and widowers, divorced persons, etc., classed by avocations. The suicides from 1869 to 1873 are thus sub-divided: Of 1,000, without distinction of sex, 204.6 were agriculturists, 244.4 in commerce, 158.3 were labourers and artisans;

63.5 were ship-builders, or otherwise connected with that calling; 52.9 belonged to the military and naval professions; 4.3 to forestry; 2.4 to the police; and 0.9 to the fisheries. It will thus be seen that, contrary to the usual impression of the healthiness of a life of labour in the open air, the agricultural interest contributed the largest proportion of victims. Most of these unhappy people either hanged or drowned themselves. When firearms were employed it was by men; the women chose poison or suffocation by the fumes of charcoal.

THE SWISS MEDICAL FACULTIES.—The three Universities at Bâle, Berne, and Zurich, each possess a faculty of medicine. German is the language in use at these Universities; but a fourth faculty has just been founded at the University of Geneva, where French is the medium of instruction. At Bâle there would seem to be considerable difficulties in the way of anatomical teaching, since the law only allows the dissection of suicides and persons who die in prison. What is known as the poly-clinic does not exist there. This institution, which is common to the other Swiss Universities and the majority of German Universities, to a certain extent resembles our out-patient departments, as by its instrumentation advice is given to out-patients. But this system is there supplemented by the students being sent to the homes of these patients when necessary, under the directions of the principal physician in charge. Instruction is given in the Swiss Faculties by ordinary and extraordinary professors named by the College of Professors, and appointed by the cantonal government, which defrays all the expenses of the University, and by free professors (*Privat Dozenten*), authorised under certain conditions to hold courses, remunerated exclusively by the pupils, which strengthen and complete the official teaching. The Swiss Faculties of Medicine, notwithstanding their justly earned repute, for they have reckoned amongst their professors Lebert, Billoth, Greisinger, Schiff, Liebermeister, etc., have very few students; there are scarcely 200 at Zurich, 150 at Berne, and 70 at Bâle. The grades obtained in any of the Universities do not immediately confer the right of practising medicine throughout Switzerland. As a rule, each canton grants the right of practising in its territory to the doctor who has obtained his diploma only after he has passed special examinations before a jury named *ad hoc*, by the communal authorities.

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The London Medical Record.

WEDNESDAY, FEBRUARY 10, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON ALCOHOL. By B. W. RICHARDSON,
M.D., F.R.S.*

(Continued from page 65.)

Disposal of Alcohol in the Organism.—We are brought now to one of the most important parts of our study. We see that, under favouring conditions, alcohol will oxidise in the presence of the air. We see that it will oxidise in two ways; actively, with the production of much heat and with the formation of carbonic acid and water; passively, with the production of aldehyde and acetic acid.

In the human body, do any similar changes take place? Throughout the whole of this vast sheet of the minute circulation there is ever in progress, during life, a process of slow oxidation of carbon and hydrogen, by which heat is produced, and carbonic acid and water are produced. The heat is proved by the animal warmth which is ever present in our bodies while we live; the carbonic acid and water, as products, are proved by their continued presence in the secretions from the lungs, skin, and other organs.

Alcohol, we have seen, is carried by the blood into this minute circulation. Is it possible that it can pass through that ordeal and undergo no chemical change? If it do undergo any changes, what is their nature? These questions have occupied the attention of many gifted minds; but they are not yet solved. Let me endeavour to put the position in which they stand plainly before you.

The earlier physiologists of this century came naturally enough to the conclusion that the alcohol taken into the body is consumed there with the evolution of heat. A certain development of heat in the superficies of the body, and a certain sensation of glow which follows upon the imbibition of spirit, lent countenance to this suspicion. But in course of time, independently of any knowledge of the effect produced by alcohol in the minute circulation of the blood, it began to be doubted whether alcohol was disposed of in the organism by its combustion. Some observers had noticed, in conducting the examination of the body after death from excess of alcohol, that the odour of the substance was present in the tissues, especially in the nervous tissue, and it was doubted whether the alcohol might not under some circumstances remain in the organism without undergoing any change at all. In 1860 three eminent Frenchmen, Lallemand and Perrin, assisted by Duroy, published a prize essay on alcohol, in which this view was maintained, or, as the authors would probably say, was originated; for in truth they were the first to state the view on direct scientific evidence.

From the result of many experiments, they came to the conclusion that alcohol taken into the living body accumulates in the tissues, especially in the liver and in the brain, and that it is eliminated by the fluid secretions, notably by the renal secretion, as alcohol. They sought in the different tissues for evidence of the secondary products of the oxidation of alcohol, for aldehyde, acetal, and acetic acid; and they found none of those products, except some acetic acid in the stomach, which acid, they concluded, was formed from the alcohol received directly into the stomach, and from the action exerted upon it there by the gastric juice. The experiments carried on by these inquirers were so numerous and careful, and the results they arrived at were so definitely stated that their labours were for a season accepted as conclusive by many men of science, and by the majority of the public. It was ascertained by other experimentalists that alcohol is eliminated by the system in the direct way, as alcohol, and the question of elimination rested as if it had been solved.

The interval of credence in these assertions was not very prolonged. An English physician soon commenced to cross a lance with his learned French peers, and to point out certain distinct errors in their results. I have no doubt many of you know, before I mention his name, that he to whom I refer was the physician who last year lost his life from the performance of his professional duties—the late Dr. Anstie. Respecting this observer, whose friendship I owned for many years, it is meet for me to pay this public tribute of respect; that no man I ever knew combined with vigour of mind, such incomparable industry and courage, or a more honourable regard for scientific truth and honesty. The subject we are considering has lost no investigator more ably learned for the work that still remains to be done.

From Dr. Anstie came the earliest expressions of doubt relative to this hypothesis of what is called the direct elimination of alcohol by the secretions, and from him have come the latest objections. His arguments have been sustained abroad by Schulinus, and in this country by Drs. Thudichum and Dupré, whose work on wine will, even in another century, be more highly prized, if that be possible, than it is now. The sum and substance of the labours of these observers is stated in a few words. They prove that while it is true that, under certain circumstances, alcohol taken into the body will pass off in the secretions unchanged, the quantity so eliminated is the merest fraction of what has been injected, and that there must be some other means by which the spirit is disposed of in the organism. In a lecture I delivered on this subject in the year 1869, I ventured to suggest, in commenting upon a series of Dr. Thudichum's remarkable researches, that perhaps one element of research was wanting to prove conclusively the fallacy of the direct elimination hypothesis. I thought that sufficient time had not been allowed between the administration of the spirit and the final determination made for it in the excreted fluids. It was not, I argued, shown how much spirit the tissues would hold unchanged. The objection was sound, and it has been renewed by more recent experiment.

In the last research conducted by Anstie, in which he was assisted by Dupré, the results of the experiments were unmistakable in their bearing on the points now under our consideration. The history of

* Cantor Lecture, No. IV. *Journal of the Society of Arts.*

these labours is recorded in full in the last paper written by Dr. Anstie, and published in the journal called the *Practitioner*, for July, 1874.

The test that had been commonly employed for determining the presence of alcohol in the fluid suspected of containing it, was the colour-test. A solution is made of this salt, the bichromate of potassa, with sulphuric acid. When to this solution alcohol is added, there is a change of colour from the brownish red to green; owing to the reduction of the chromic acid to the green oxide of the base chromium. By marking the difference of colour produced, a scale can be adopted which will show the extent of the reduction, and thereby the amount of the spirit that has caused the change. This process was improved by Dr. Dupré. He distilled the fluid in which alcohol was believed to be present, and then, after treating the distillate with the bichromate and sulphuric acid solution, he tested with a standard solution of soda for the amount of acetic acid which would be produced by the oxidation of alcohol were that fluid present.

This modification of test was and is a very considerable advance, since it enabled the observers to conduct their determinations with greater accuracy of detail. In the research they conducted with it two facts of singular interest were elicited. The first fact was discovered by Dr. Dupré. It was, that from the secretions of persons who do not drink alcohol at all a fluid can be distilled which affects the chromic test as if alcohol were actually present in the secreted fluids, and that this hitherto unsuspected product is oxidised into an acid, so like acetic acid it cannot be distinguished from it, and is apparently identical with it. To be plain, Dr. Dupré's discovery suggests that no man can be, in strict scientific sense, a non-alcoholic, inasmuch as 'will he nill he'—he brews in his own economy a 'wee drap.' It is an innocent brew certainly, but it is brewed, and the most ardent abstainer must excuse it. 'Argal, he that is not guilty of his own death shorteneth not his own life.' The fault, if it be one, rests with nature, who, according to our poor estimates, is no more faultless than the rest of her sex.

The second fact, which came chiefly from the labours of Dr. Anstie, was that from animals under alcohol, not one of the secretions, not all the secretions combined, yielded any more than a fractional amount of the alcohol that had been administered. The experiments were by necessity made on the inferior animals, but they supplied none the less conclusively the fact stated. It was proved that an animal, a terrier dog, weighing ten pounds, could take with comparative impunity nearly 2,000 grains of absolute alcohol in ten days, and that on the last day of this regimen he eliminated by all the channels of elimination only 1·13 grains of alcohol. This fact was of itself sufficiently remarkable, but another still more important remains to be told. In completion of his research after an animal had been treated with alcohol, as above described, Anstie killed it, instantly and painlessly, two hours after it had received the last quantity—ninety-five grains—of spirit. Then the whole body, including every fragment of tissue with all the fluid and solid contents, was subjected to analysis, with the result of discovering only 23·66 grains of spirit.

We are driven by the evidence now before us to the certain conclusion that in the animal body alcohol is decomposed; that is to say, a certain portion of it (and if a certain portion why not the whole?) is transmutable into new compounds. The

inference that might be drawn is fair enough, that the alcohol is lost by being burned in the body. It is lost in the body, and out of the body it will burn. If it will burn in the organism it will supply force, for it enters as the bearer of so much potential energy. In combining with oxygen, is there then a development of force or heat to the extent that would be developed in the combustion of the same quantity in the lamp, or from the distribution of it over the platinum black? At the same time, and in corroboration, is that product of its combustion, carbonic acid, to be discovered in the excretions? If there be heat, and if there be product of carbon consumed in oxygen, then alcohol must rank as a heat-forming food.

(To be continued.)

OERTEL ON THE TREATMENT OF DIPHTHERIA.*

General Treatment.—The treatment of diphtheria by internal remedies is based upon the same principles as those which guide the administration of internal remedies in other infectious diseases. As we possess no remedies which act directly to destroy or restrain the disease, or the virulent poison which causes it, we resort only at the present time to those agents which meet the existing indications.

For this purpose, therefore, cooling and antifebrile remedies should be chiefly given during the commencement of the sickness; these are, for instance, the mineral acids, dilute hydrochloric and phosphoric acids, and solutions of the sulphate or the muriate of quinine, in doses proportioned to the age of the patient and the vigour of the symptoms. If gastric symptoms usher in the disease, we can best quiet these by the administration of remedies containing carbonic acid gas, such as the effervescing draughts and various mineral waters. Where exhausting diarrhoea exists, we must combat it energetically at once, employing for this purpose, according to the intensity of the trouble, oily and mucilaginous substances, in combination with varying doses of opium, or solutions of tannin, alum, nitrate of silver, etc. If on the second or third day the fever diminish, and all complications have been successfully brought under control, our best plan is to wait, and not to resume active interference until new and then generally alarming symptoms develop.

In some cases already on the third or fourth day an alarming diminution of the patient's strength is observed; under these circumstances, we must give the preference to excitant remedies. When the pulse becomes frequent and lacking in force, and the heart-sounds are feeble and indistinct, we may resort to the use of quinine in large doses (from eight to fifteen grains); and should this succeed in strengthening the heart's action—which, alas! is very rarely the case—we may then change to other tonic remedies. Still even quinine may be continued for some time with advantage as a tonic, if administered in small doses of from three to four and a half grains in the course of the day. The stronger wines and nourishing diet, in the form of concentrated meat-broths, soups to which the yolks of eggs have been added; tea and coffee will also be found indispensable adjuncts. If under this treatment the patient do not improve, we may expect soon to see a still further depression of the vital forces, with indications of a

* *Ziemssen's Cyclopædia.*

pronounced sepsis, and symptoms of a fatal termination. At this point we may employ without hesitation large doses of the strongest irritants, as, for instance, sulphuric ether, Bestuscheff's tincture of iron,* and cognac, combined with the stronger wines, in the hope of exciting the feeble and irregularly acting heart to energetic contraction. In adults, sulphuric ether or Bestuscheff's tincture should not be given in smaller doses than ten drops every hour, if we expect to obtain the desired effect; and where collapse has begun to show itself, the same dose, or even a larger one (from twelve to fifteen drops), should be given every half hour not only during the day, but throughout the night, or at least the greater part of it. Even in children and young individuals, where as an exceptional thing death has not been caused by suffocation through the blocking up of the larynx and air-passages, but is, however, threatening the patient's life through septicæmia, we should not hesitate to employ these same remedies. The dose must then, of course, be reduced so as to correspond with the age of the patient and the intensity of the disease. The English recommend the administration of large doses of cognac in diphtheria under the same circumstances as those in which they have been in the habit of using it in typhus; and I have myself used it several times, with permanently good effects, giving in the course of a day to an adult from four to six ounces. Where cognac alone does not seem to agree with the patient it can be mixed with wine—Bordeaux, for instance, or Carlowitz—or with sweetened water, and given in conjunction with ether and Bestuscheff's tincture. In children it should be mixed with simple syrup or the syrup of orange-peel, in the proportion of one part of cognac to two of syrup; in this shape it is borne well.† In severe forms of pharyngeal diphtheria it will sometimes be necessary, even in children only three or four years old, to administer in the course of a day as much as an ounce or an ounce and a half of cognac; but the strong wines, such as Tokay, port wine, and strong Bordeaux, also act powerfully upon the heart, and their use is therefore highly to be commended.

It is extraordinary what large quantities of ether and alcoholic beverages may be taken, even by children, when the septic influence of the disease has lowered the excitability of the central organs and enfeebled the action of the heart. On the other hand, it is of course clear that if these be used prematurely and without judgment their effect may be the very reverse of what is desired; they may greatly increase the frequency of the pulse and the temperature of the body, they may call into existence symptoms of irritation of the brain and spinal cord, or they may induce serious disturbances of nutrition by the gastric complications which they cause. The first appreciable improvement produced by these remedies shows itself in a diminution of the frequency and a greater regularity of the pulse, together with a more natural temperature of the surface, especially noticeable at the extremities; the pulse gradually improves in quality, is fuller and stronger; the sensorium, if previously clouded, becomes clearer; and that, too, notwithstanding the enormous quantities

taken of ether and alcohol, which under ordinary circumstances would have produced a very marked obscuration of the faculties; and finally, the patient shows signs of returning strength and energy in all his functions.

If these manifestations of improvement be followed by genuine convalescence, we should, of course, gradually exchange these stronger stimulants for tonics, like quinine, iron, and good, nourishing diet; but at first it is well not to give up the cognac and strong wines altogether. As a rule, those patients whose constitutions have been deeply affected by the poison of the disease do not recover at once. After the lapse of a short time, and generally while the urine contains albumen, secondary paralysis or other sequelæ occur, and necessitate further treatment and constant supervision on the part of the physician.

If during the subsequent course of the disease, or even during the first few days, the patient manifest increasing signs of apathy and prostration, his pulse diminishing steadily in frequency until it reaches perhaps the rate of from forty to fifty beats in the minute, and the temperature of his body falling to a proportionate degree, it is hopeless to expect any assistance from stimulating remedies. Neither ether, musk, castor, nor camphor will prove of any avail in averting death.

Local Treatment.—In the management of the diphtheritic inflammation on mucous membranes, we have two objects to keep prominently before us: first, the character of the inflammation itself; secondly, the signs of reaction which precede the process of repair, the *vis medicatrix nature*.

The diphtheritic affection of the mucous membrane is distinguished as an exudative inflammation, which may increase from a simple catarrhal exudation to the pouring out of a fibrinous effusion upon the mucous membrane, or may even lead to the mortification of the tissue itself through the amount of inflammatory products and of micrococci; at the same time, the entrance of vegetable organisms into the blood and the absorption of injurious products of decomposition induce a general poisoning of the system.

Any therapeutic procedure, then, which in any way involves the danger of promoting these processes, will be already barred in advance. When retrogression of the pathological process takes place, and the false membranes become detached by the unaided efforts of nature, we find that this is invariably done through suppuration. The entrance of micrococci and the absorption of putrefying substances is prevented by a thick impermeable layer of pus-corpuscles, which at first infiltrate the superficial portions of the tissue, and ultimately, pressing forth from it, form a separating stratum of pus on the surface of the mucous membrane. The process of healing in the case of wounds which are the seat of diphtheritic infection, is accomplished in the same way, as I have repeatedly demonstrated in diphtheria of the respiratory mucous membrane; the removal of dangerous matters is accomplished here too by means of supuration.

After condemning local blood-letting and the application of ice as not only useless but as absolutely hurtful, Dr. Oertel next considers the effort to remove the seeds of the infectious material from the mucous membranes by mechanical detachment of the pseudo-membranes, or by destroying them with caustics or chemical solutions; and secondly, the aim to effect by astringents mainly a contraction of the inflamed

+ Chloride of iron dissolved in a mixture of one measure of ether to three of alcohol. It contains one per cent. of iron.—*German Ph.*

* Charles West, in the course of one day, once gave with good results nearly four ounces of cognac and an equal amount of port-wine to a child four years old.

mucous membrane and a limitation of the exudation.

Now, as far as concerns the mechanical detachment of the pseudo-membranes as being sources of inflammation, it certainly requires only a brief reference to the pathology of the process to make evident the uselessness and danger of such an interference. It cannot be enough insisted on that, in diphtheria of the mouth and throat, the contagious material is not confined to the false membranes, but is present throughout all the mucous membranes involved, as well as noticeably in the fluids of the mouth, in greater or less quantity. If now we attempt the mechanical detachment of the deposit, which in the beginning of the process is still quite firmly adherent, it always results in the production of small wounds of the surface of the mucous membrane, as shown by bleeding points where the individual capillaries have been torn. The possibility of an easier and considerable entrance of vegetable parasites and products of decomposition into the tissues is thus readily afforded, and, as proved experimentally, the life of the patient is put in far greater danger. The immediate result of such mechanical violence is, as a rule, the rapid reproduction of the pseudo-membranes, and at the same time they spread over a greater extent, owing to the increase of local inflammation and fibrinous exudation. But the final results where such a procedure has been resorted to are extraordinarily bad; the vast majority of patients, and, where the diseased process is intense, the whole of them, succumb to the infection of the general system.

In the attempt to combat the local process by cauterisation, we meet with a stage of things similar to what occurs when a simple mechanical detachment of the pseudo-membranes is attempted. This procedure was one of the earliest employed against diphtheria, and, since it agreed very closely with the theoretical views held on the subject, it was soon very widely adopted. Not only is it impossible completely to annihilate the diphtheritic contagious material, even by repeated cauterisation, when it has once become diffused throughout the whole buccal cavity, though every patch be never so carefully destroyed, but it is also impossible to combat the local disease by attempts to convert the specific inflammation into a simple one by these cauterisations. The immediate result of even the most prudent cauterisation is always a certain degree of mechanical violence to the inflamed mucous membrane; and the more circumspectly we endeavour to destroy all the greyish-white deposits, the more is the subepithelial tissue of the mucous membrane laid bare, the resulting slough failing to afford thorough protection in the way of a covering. In the cavity of the mouth, and in the mucus and saliva it contains, growths of micrococcus, as products of decomposition, are present in sufficient quantity to easily find their way into the lacerated parts of the mucous membrane, even though these be scarcely as large as a pin's head or only discernible with the microscope; and besides, the increased inflammation caused by the mechanical and chemical irritation furnishes a much more favourable soil.* I was enabled to observe these facts and prove them experimentally as long ago as 1864 and 1865. There can be no doubt, then, that the unfavourable results which have been attained on all sides by cauterisation, more or less energetically

practised, must put a stop to this procedure, even if in its stead we should be obliged to resort to the opposite, the purely expectant and symptomatic treatment.

But even the attempt to dissolve the pseudo-membranes chemically will prove practically valuable only so far as it can widen the space encroached upon by the membranes. But the danger of suffocation is scarcely to be feared when the throat alone is affected, however thick the membranous deposits may be, but only when the larynx and trachea are involved at the same time, and when, owing to the encroachment of the membranes, it becomes of vital consequence to remove them. With regard to the affection of the mucous membrane itself, as well in the case of the mouth and throat as in that of the other air-passages, the solution of the false membranes by chemical means cannot, as I have shown, have the least influence so long as the inflammation itself is not subdued. After dissolving the pseudo-membranes a new fibrinous exudation takes place, a second one forms, and even sometimes a third, without the treatment having gained any advance upon the disease. It is a necessary condition for improvement that after the removal of the false membranes the exudation also should cease, and a corresponding reaction, with energetic production of pus and new formation of cells, should take place upon the mucous membrane, which has been deprived of its epithelium and perhaps too of the uppermost of its layers of connective tissue. The danger too of a general systemic infection is just as little diminished by the chemical detachment of the pseudo-membranes as by the mechanical; and besides, in the former case the possibility of the introduction of masses of micrococcus and of decomposing substances into the mucous membrane, already laid bare and deprived of its epithelium, is greatly increased; the vegetable parasites and products of decomposition present in the mouth and pharynx are just as little destroyed by the chemical agents used for dissolving the membranes as by the caustics, which were formerly employed locally. When therefore it is not a question of treating a mechanical closure of the air-passages, or of averting the danger of threatening suffocation, we have no reason for using this procedure.

Lastly, it was quite early thought possible to obtain by astringents, especially in the form of gargles, 'an increase of the organic cohesion of the mucosa,' and thereby to antagonise the threatened loosening and dissolving of the tissue. Without considering the theoretical notion lying at the foundation of this treatment, no diminution of the exudation on the inflamed mucous membrane could be obtained by ever so energetic an employment of these means; but, on the contrary, through the irritation caused by these articles, an increase of the inflammation would be occasioned and kept up. Just the same conditions obtain here as in exudative inflammations in other mucous membranes; if an energetic treatment with astringents be employed in the acute stage, we have as a result an increase of the diseased process. But even supposing it possible to obtain a diminution of the fibrinous exudation by such means, still nothing would be gained in this way towards the cure of the processes of inflammation and decomposition in the mucous membranes. Neither does it affect the detachment of the pseudo-membranes and destruction of the masses of micrococcus, since these, unless nature interposes a

* Compare *Aertsl. Intell.-Bl.* 2,868. No. 31.

boundary by the formation of pus, may continue to grow unmolested within the tissues; nor is a stop thereby put to the decomposition of pathological products and the possible formation of injurious substances in the mouth and throat. Finally, as concerns the statistics of the empirical results, they do not testify in favour of the curative action of these remedies, since the astringents have proved themselves completely useless in every important case; and in the great number of cases which run an easy course, and are confined to a local manifestation, the favourable results are capable of an entirely different explanation.

(To be continued.)

CHRONIC LEAD-POISONING.

Of late the attention of physicians and chemists has been largely drawn to this subject on account of the increasing frequency of its occurrence, and on account of its great importance from a hygienic point of view. Not much that is new has been added to our knowledge of the sources of lead-poisoning, but many experiments have been performed which assist in explaining the exact action of the various kinds of water upon lead pipe, and much has been done to discover means of purifying water which has become contaminated with lead-compounds, and for substituting innocuous utensils instead of those which contain lead in their composition.

That distilled water when exposed to the air has a very powerful action upon metallic lead, is not a new observation. Thus, M. Pierre (*Journal de Pharmacie et de Chimie*, June 1874) detected $1\frac{1}{2}$ grain of the hydrocarbonate of lead in the distillate collected after passing steam through a coil of lead pipe. Nor is it new that the presence of certain salts in water modifies this action very greatly. The effect of various saline compounds has been studied at considerable length by M. Fordos (*Journal de Pharmacie et de Chimie*, July 1874). He finds that in potable waters which contain bicarbonate of calcium, the oxide of lead combines with a part of the carbonic acid, and there results a precipitate of the mixed carbonates of lead and calcium, which adheres to the surface of the lead pipe and prevents further contact of the metal with the water.

In water which contains the sulphate of sodium, the precipitate which results consists of a mixture of the carbonate and sulphate of lead. At the same time the water becomes alkaline to test-paper, and the filtered solution gives a black precipitate with sulphuretted hydrogen. Not only, therefore, has a precipitate of lead-salt formed, but there is also some lead in solution. This is explained in the following way. The oxide of lead, formed by the action of the water, reacts on the sulphate of sodium to form sulphate of lead and hydrate of sodium (liquor sodii); the carbonic acid derived from the air converts the latter into carbonate of sodium, which reacts upon the sulphate of lead to form carbonate of lead and sulphate of sodium again. The sulphate of lead is not absolutely insoluble in alkaline solutions.

With water which contains common salt, the result is analogous, a mixture of the chloride and carbonate of lead being formed. Analogous also is the action of chloride of ammonium, nitre, and nitrate of ammonium.

The action of water which contains gypsum (sulphate of calcium) upon metallic lead is very

slight, a precipitate of the carbonates of lead and calcium being formed upon the surface of the metal, protecting it from further action. If the water contain in addition to the gypsum 'oor of common salt, the action upon the lead is much greater. The sulphate of magnesium has the same action as the sulphate of calcium.

It will be seen, therefore, that the presence of alkaline salts in water can render partially soluble those salts of lead which are insoluble in pure water, such as the carbonates and sulphates, and thus partially counteract the beneficial effects of the earthy sulphates and carbonates in preserving the pipe from being further acted upon by the water.

M. Rafard states (*Journal de Chimie Médicale*, November 1874) that the simple addition of sulphuretted hydrogen is not a sufficiently delicate test for lead in water, since the hydrocarbonate of lead, which is formed by the action of pure water upon lead, and which consists of four equivalents of the oxide of lead, three of carbonic acid, and one of water, often exists in the water in a state of such minute subdivision that it cannot be seen by the unaided eye. In such a water, it is necessary first to dissolve the lead carbonate before it will be blackened by the sulphuretted hydrogen. In order to effect this solution it is only necessary, before adding the sulphuretted hydrogen, to bring the water to boiling, and add a few drops of a solution of tartrate of ammonium, which dissolves those lead-compounds which are insoluble in water. If these precautions be adopted, the brown colour of the sulphide of lead can be seen if only very small amounts are present.

To remove lead salts from water, M. Chevallier (*Annales d'Hygiène*, July 1874) recommends the use of animal charcoal. This method is especially applicable on board vessels, to remove salts of lead or copper from the water which is provided for drinking purposes by distillation. In many of the distilling apparatuses, the coil for the condensation of the steam is made of lead or copper, and the water thus condensed always contains a certain amount of the salts of the metal of which the coil is constructed. Many cases are recorded of what is termed 'dry colic' among the sailors on board of vessels which are provided with such an apparatus.

Experiments of Lowitz and others have shown that animal charcoal is capable of removing from water not only various organic matters, but also many mineral salts, such as those of lead and copper. The treatment of the water is as follows: To each hectolitre (about 26½ gallons) should be added thirty grammes (about one ounce) of well washed animal charcoal; the mixture should be well shaken or stirred several times, and then allowed to settle. The supernatant fluid is free from compounds of lead or copper, and is suitable for drinking purposes. Upon the same principle, by using charcoal filters for water which has flowed through lead pipe, tolerable security against lead-poisoning can be obtained, if care be taken not to overtax the filters.

It has long been known that one of the fertile sources of chronic lead-poisoning is the use of common glazed earthenware dishes for the preservation or cooking of food, especially acid fruits. The glazing of such vessels contains lead, which can be dissolved out by acids. M. Constantin, a chemist in Brest (*Journal de Chimie Médicale*, October 1874), has invented a new glazing which contains no lead and should be substituted for the lead glazings.

This is made by fusing a mixture of one hundred parts of silicate of sodium, fifteen parts of powdered quartz, and fifteen parts of chalk. To these ingredients may be added ten parts of borax, which renders the glass more fusible and adds to the brilliancy and durability of the glazing.

In the *Journal de Pharmacie et de Chimie*, for August 1874, is given a report by MM. Bergeron and l'Hôte of an outbreak of lead-poisoning in which twenty-six persons were affected. Two of the cases proved fatal. The disease was traced to the presence of lead in brine in which butter was kept. Six specimens were analysed, and found to contain amounts of the chloride of lead corresponding to from 2.3 to 7.5 grammes of sugar of lead to the litre of brine. Lead was detected in the intestines, liver, and brain of those who died. The existence of lead in the brain in cases of chronic poisoning has been denied by many authors. In the above cases, however, all the proper precautions were taken in performing the analyses, and the metal itself was extracted and weighed, so that there can be no doubt of its existence in that organ in some cases.

Dr. A. Manouvriez (*Recherches cliniques sur l'intoxication saturnine locale et directe par Absorption cutanée*, Paris, 1874) reports in detail thirty cases of chronic lead-poisoning, from the study of which he draws the following conclusions.

'1. In addition to general and indirect poisoning by digestive and pulmonary absorption, there exists a local and direct intoxication by cutaneous absorption, affecting the parts in immediate contact with the lead.

'2. This local intoxication manifests itself by neuralgic pains both articular and muscular, by cramps, trembling, tingling sensations, sensory and motor paralysis, and atrophy.

'3. This local affection, which in most cases co-exists with the general affection, can nevertheless in certain cases exist alone.

'4. These local symptoms can advantageously be combated by local external treatment, and prevented by hygienic precautions which keep the skin from contact with the lead preparation.

'5. The greatest caution is necessary in the employment of medicinal preparations containing lead local applications to the skin.'

Of the thirty cases reported, eight handled lead in the metallic form, as plumbers and type-setters, and twenty-two handled it in the form of white lead and minium. Three of the patients presented no symptoms of the general affection, no colic, no constipation, and no blue lines upon the gums.

In painters the local symptoms predominated upon the fore arm, affecting preferably the right side in those who were right-handed, and the left side in those who were left-handed. The symptoms, which were located exclusively or predominated at the points of contact with the lead, were motor paralysis (in twenty-two cases), paralysis of sensibility to pain (in twenty-seven), to touch and to temperature (in twenty-six), and to tickling (in twenty-two), trembling (in seven), cramps (in eight), pain (in nine), and tingling sensations (in four). After taking a sulphur-bath, the skin at the points of contact with the metal was coloured black in eight cases, although no colouration could be seen previously to taking the bath.

BINZ ON THE ACTION OF QUININE.*

In a pamphlet of seventy pages, Professor Binz furnishes a critical summary of the work done in this department since 1867, the year in which his book *Ueber das Wesen der Chininwirkung* drew general attention to the subject. Eighty-two papers are enumerated, of which no fewer than twenty-seven are from the pen of the professor himself. Most of the evidence is in favour of the views he originally put forth, which may be briefly summarised as follows.

Those processes of fermentation and putrefaction which are usually connected with the evolution of living organisms are checked or prevented by quinine, which exerts a paralyzing, or, in larger doses, a destructive action on most of the simpler organisms. The changes wrought by emulsion upon amygdalin, the conversion of albumin into peptone, that of starch into sugar, do not stand in any intimate relation to organised ferments; accordingly, they are not appreciably restricted by quinine. Further, some forms of protoplasm are less susceptible than others to the influence of the alkaloid: thus penicillium thrives in solutions of quinine containing a trace of sulphuric acid; the *amæba* of salt-springs and the *euglenæ* of salt-marshes are but little affected by it.

In close connection with this toxic effect of quinine on lower organisms, stands its action on leucocytes. It is able to paralyse their spontaneous movements and to check their migration into inflamed parts.

Quinine cures the various manifestations of the malarial cachexia by acting directly upon the central cause of those manifestations, whether this be an organised germ or some albuminoid material in a state of change. Its curative action is not exerted through the nervous system. Indeed, the effect of quinine on the brain, cord, and peripheral nerves, has been much exaggerated, and is chiefly indirect. Thus the lowering of the reflex excitability of the cord exhibited by frogs under the influence of the alkaloid (Eulenberg), and supposed to be due to stimulation of the inhibitory centres in the brain (Chaperon), is really to be ascribed to the depressant action of the drug upon the heart, and the consequent diminution in the supply of blood to the grey matter of the cord. The tinnitus, vertigo, drowsiness, and other symptoms of quinism in man may possibly be due to a partial anæmia of the brain.

The power of lessening the size of an enlarged spleen which quinine undoubtedly possesses, has been shown to be independent of the nervous system by Mosler and Landois; after dividing all the nerves going to the spleen, they made the organ contract by administering the drug. Mosler explains this fact by supposing that the alkaloid stimulates the contractile elements directly. Binz, without entirely rejecting this hypothesis, is inclined to believe that the mode of action is more complex, that the drug paralyses the irritant miasm in virtue of its antiseptic quality; that it limits the corpuscular proliferation in the splenic parenchyma; and, finally, that it checks the processes of oxidation which go on there. The functional activity of the organ being thus reduced, its blood-supply is secondarily lessened, and it shrinks in bulk.

The antipyretic effects of quinine are not due to

* *Das Chinin, nach den neueren pharmakologischen Arbeiten dargestellt.* Von C. Binz. Berlin, 1875.

any mysterious operation on the brain or vaso-motor nerves. Neither can they be explained by its depressant action on the heart. It has been experimentally proved that, when the temperature of fevered animals is lowered by quinine, the fall is due, not to any increase of the heat given off, but to a diminution of the heat generated in the body. And this is owing to the power which quinine possesses of limiting the oxidation of the azotised constituents of the organism. The exact nature of this power is still obscure. Quinine undoubtedly hinders the hæmoglobin of the red corpuscles from yielding up its oxygen to the tissues, and prevents the characteristic action of ozone upon egg-albumin. Moreover, Ranke and others have demonstrated that the excretion of uric acid and urea is much diminished by quinine, and that this diminution can only be accounted for by a reduced production of nitrogenous excreta in the body. The effect of the alkaloid on the amount of carbonic acid exhaled is still under investigation; it does not seem to lessen it to any great extent.

The therapeutic value of quinine in various septicæmic conditions, whether accidental or artificially induced, is unquestionable. It probably depends on several causes; but its hostility to septic organisms, to oxidation, and to inflammatory processes, will probably suffice to explain it.

The last part of the pamphlet is taken up by clinical evidence of the value of quinine in surgical septicæmia (Socin), enteric fever (Leibermeister), hay-fever (Helmholtz), small-pox (Ladendorf), whooping-cough (Binz), and practical hints on dosage and mode of administration. The author recommends large doses, and brings facts to show that even very large doses do not necessarily give rise to dangerous symptoms; e.g., fifteen grains to children under two years of age, seventy-five grains (!) to adults suffering from pneumonia (Jürgensen).

E. BUCHANAN BAXTER, M.D.

ANATOMY AND PHYSIOLOGY.

PINK AND HEIDENHAIN ON DIABETES MELLITUS AND THE FORMATION OF GLYCOGEN IN THE LIVER.—H. Pink (*Inaugural Dissertation*, Königsberg, 1874; abstract in *Centralblatt für die Med. Wissensch.*, no. 3, 1875) investigated how long a rabbit must fast in order to be certain that the liver contains no glycogen; and in this way that he tested one part of the liver for glycogen, the second he digested with saliva, and analysed the sugar contained therein. He found that five days were sufficient to remove every trace of glycogen. A solution of ordinary grape-sugar (two to three grammes) was injected into the vena meseraica of a rabbit which had hungered for five days, and the animal was investigated in from half an hour to an hour and a half afterwards. The investigation of the liver was investigated in the same way as formerly, only the weight of the piece of liver in boiling-water was estimated, and the sugar was also estimated in the first portion. The quantity of glycogen was now estimated. In all cases glycogen was found in the first piece of liver, and only traces or little sugar; in the second piece plenty of sugar. In that the sugar in the second piece can only have been derived from glycogen, the experiments confirm the results of Schöffer, that sugar injected into the vena meseraica passes

into glycogen. Made aware that the grape-sugar contained dextrin, the author repeated the experiments with pure sugar, and once with glycerine, and arrived at a completely different result; the first piece of liver contained no glycogen, the second not more sugar than the first. Afterwards the author injected pure sugar as well as glycerine into the stomach, and found a plentiful formation of glycogen. The author concludes that sugar as well as glycerine are changed in some way by the stomach, and their change into glycogen rendered more easy.

In the experiments of Heidenhain (*Inaugural Dissertation*, Königsberg, 1875; abstract in *Centralblatt für die Medicinischen Wissenschaften*, no. 3, 1875) chemically pure grape-sugar was injected into the vena meseraica of fasting rabbits, to settle the question whether sugar actually passes into glycogen. The author investigated a piece of liver each time before the operation, or a few minutes after the injection; the second larger piece of liver after the animal had lived from twenty to forty-five minutes. As with Pink, the weight of the piece of liver was taken, and the glycogen estimated quantitatively; the result, with one exception, was at one time more, at another less increase in the glycogen. Thus far his results stand in direct contradiction to those of the former paper. Nevertheless, the quantities of glycogen were always relatively smaller in proportion to the quantity of sugar injected. This was four to nine grammes (61 to 138 grains); the glycogen obtained was only 0.05 to 0.156 grammes (0.2 to 2.34 grains). Schöffer's view that the liver can change 0.12 grammes sugar into glycogen in a minute, cannot therefore in this form be correct. The small quantity of glycogen leads the author, like Pink, to think that sugar undergoes some kind of change in the stomach or intestine, which render it more fit to be transformed into glycogen. To test this idea the author ligatured the pylorus of rabbits (*b*) and then injected sugar, intact animals serving as a control (*a*). In fact the quantity of glycogen became markedly less after ligature of the pylorus, the urine contained no sugar, whilst it generally contained sugar. The quantity of glycogen in *a* was 0.119, 0.636, 0.206; in *b*, 0.014, 0.015, 0.075, 0.099, 0.085 grammes.

HEUBEL ON THE 'SPASM-CENTRE' OF THE FROG AND ITS RELATION TO CERTAIN DRUGS.—E. Heubel (*Pflüger's Archiv*, vol. ix., and abstract in *Centralblatt für die Med. Wissenschaften*, no. 59, 1874) remarks that the tonic form of contraction occurring in the frog has been more studied than the more seldom occurring clonic convulsions. Former investigations had not rendered it certain whether there existed in the central nervous system a circumscribed spot whose stimulation was followed by general clonic spasms. The exposed nervous centres of strong frogs were stimulated by simple, more or less gentle, contact with the head of a needle. Stimulation of the cerebrum, of the thalami optici, of the cerebellum, never gave muscular contractions; that of the corpora quadrigemina produced movements of the eyes, of the membrana nictitans, and bending of the head forwards and downwards. If the anterior broad part of the upper surface of the medulla oblongata (sinus rhomboideus), were touched with the head of a needle, the frog showed as 'an unmistakable sign of pain,' a sudden powerful contraction of the whole body, so that after removal of

the needle the animal lay spasmodically flat upon the table. It remained for a longer or shorter time in a comatose condition, which sometimes passed into death. More sensitive to the same method of stimulation was the posterior angle (that nearer to the spinal cord) of the sinus rhomboideus. Upon touching this spot, the animal constantly uttered a loud cry, followed by trismus, general convulsions, clonic mixed with tonic spasms, whereby all muscles were thrown into action, the animal being caused to roll over, and it continued to contract upon the table. After the spasmodic seizure had passed off, the frog remained some time in the sometimes very remarkable position, until almost completely motionless, and reflex sensibility had almost disappeared. If the animal recovered, the collective symptoms could again be produced, but not with the same intensity. The same results were obtained if, before the stimulation, the medulla oblongata, cerebrum, thalami optici and corpora quadrigemina were removed; sometimes also by a simple section through the medulla oblongata, which probably acted as a stimulus to the hypothetical spasm-centre (*Krampf-centrum*). As the anterior limit of this centrum may be indicated an imaginary line which divides the sinus rhomboideus into an anterior and posterior half, whilst the posterior limit certainly does not lie more than one or one and a half millimètres (.04 or .06 inch) behind the calamus scriptorius. Concentrated solution of chloride of sodium also produced general bodily convulsions, which passed into tetanus. It could be proved that the centre for these muscular contractions is to be sought in the medulla oblongata. After the assumption of a special 'spasm-centre' (Nothnagel) was capable of being regarded as probable, the idea that this action of picrotoxin, nicotin, and other bodies upon the organism is caused through this centre lay at hand. The author corroborates the proofs already offered by Röber, that picrotoxin, in that it produces the known characteristic spasms, acts as a stimulus to the ganglionic apparatus of the medulla. The same is also true (contrary to the ordinary assumption) of nicotin. After careful separation of the brain from the spinal cord in the frog, it is said that nicotin spasms no longer take place; on the spinal cord this alkaloid acts only as a depressant, and to such a considerable extent, that always (when the medulla oblongata is retained) only a single spasmodic seizure is produced, and repetition and increase of the dose do not cause a second attack. As by mechanical irritation, and by chloride of sodium, picrotoxin and nicotin, so also by caustic ammonia, carbonate of ammonia, bromide of ammonia, and chloride of ammonium general clonic spasms could be produced, whose point of origin was undoubtedly placed in the medulla oblongata. In all the above experiments, it remains doubtful whether the spasms were produced reflexly or directly. Several circumstances support the latter view. In all experiments the reflex sensibility was considerably diminished, whilst in undoubtedly reflex spasms (*e.g.* those produced by strychnin) the reflex sensibility is almost always increased. Further, artificial respiration was without effect on the spasms produced by nicotin, whilst reflex spasms, as is known, are cut short by apnoea.

The author adverts to the fact that, under strong stimulation of peripheral sensory nerves, certain actions of the large nerve-centres are inhibited. Corresponding to this he explains the diminution of

the reflex sensibility and of the sensory activities during and after stimulation of the 'spasm-centre,' 'this most sensitive point of the whole cerebro-spinal axis,' as a direct consequence of stimulation of the medulla itself.

WM. STIRLING, D.Sc., M.B., Edinburgh.

RECENT PAPERS.

- On the Science and Art of Embalming the Dead. By Dr. B. W. Richardson, F.R.S. (*Medical Times and Gazette*, January 2, 16, and 30.) [After giving some account of the processes formerly employed, Dr. Richardson gives full practical directions for the performance of this operation, according to a plan perfected by himself.]
- On the Natural Connection between the Functions of the Lungs and Heart. By Dr. V. Chirone. (*Lo Sperimentale*, January, 1875.)
- On the Physiology of the Act of Vomiting. By Dr. Broadbent. (*Practitioner*, February, 1875.)
- The Physiology of Micturition and Retention of Urine. By Mr. Henry Power. (*Practitioner*, January.) [An account of the recent experimental researches of Budge, Goltz, and others, demonstrating that the action of the bladder is directly controlled by an excito-motor centre of nerve-force situated in the spinal cord, nearly opposite the fifth lumbar vertebra, and that in animals the bladder is almost independent of the brain, and in man is only secondarily influenced by it.]
- On the Similarity between the Red Blood-Corpuscles of Man and those of certain other Mammals. By Dr. J. J. Woodward. (*Monthly Microscopical Journal*, February.)

PATHOLOGY.

WICKHAM LEGG ON SOME REMARKABLE CASES IN MORBID ANATOMY.—Under this title Dr. Legg has reprinted some cases of great interest from volume x. of the *St. Bartholomew's Hospital Reports*. As these are easily accessible to most readers, it seems sufficient to give a brief abstract, referring for details to the original.

The first case is that of a woman, aged thirty-seven, with bronzing of skin, increasing weakness, loss of flesh (having lost four stone in weight in about eighteen months) and vomiting; in whom no right suprarenal capsule could be discovered, whilst the left had undergone such extreme fibrous degeneration that it resembled a mere shell with no contents.

The second case is one of meningitis, and blocking of the artery of the Sylvian fissure on the right side, with erysipelas of the head and face. [The reporter begs to submit that colpitis more properly signifies what is commonly called vaginitis, though qualified hereby by the word cavernosa, and applied to inflammatory changes in the cavernous sinuses. In so saying he is quite aware that Dr. Legg may plead authorities as precedents: but he thinks it is better to avoid ambiguous words.]

Case 3 is one of ulcer of the stomach with fatal hæmatemesis, from perforation of the splenic artery. The patient was a woman, aged thirty-four, who had suffered from sickness for years. The stomach was sacculated, in a tripartite fashion. The secondary stomach, to all appearance, may have been congenital.

Two cases of poisoning by hydrochloric acid come next. In the first, a man aged fifty took about three-quarters of a teacupful of strong hydrochloric acid (three to four ounces?). In the second, a woman, aged thirty-five, took 'about a teacupful.' Both died four or five hours after admission, and apparently about six or seven hours after swallowing the acid. In both

the pharynx and œsophagus were whitened, whilst the mucous membrane of their stomachs was blackened. In the man the stomach was thinned and dilated; in the woman the stomach was contracted, and its coats thickened. There was extensive fatty infiltration of the liver in the man, like phosphorus-poisoning.

Case No. 6 was one of mitral constriction, with well-marked concentric hypertrophy of the left ventricle of the heart, plugging of artery to the left Sylvian fissure, and softening of the brain; in a man aged twenty-three, whose history was unknown.

The seventh case is noteworthy, from the fact of a round-celled sarcoma of the pyloric half of the stomach, adjacent part of the liver, omentum, etc., occurring in a girl aged seventeen, in Dr. Southey's wards. There was fibro-cystic degeneration of the ovaries. This case appears almost, if not quite, unique, unless Wilkinson's, quoted by Dr. Legg (from the *Monthly Journal of Medical Science* for 1841, p. 23) be analogous, which seems doubtful.

The eighth is one of cancerous ulcer of the stomach, with suppurative thrombosis of the portal vein [pylephlebitis], in a man aged sixty-three, under Dr. Southey's care.

The next case, in a single Jewess, aged twenty-three, was one of a gall-stone of the size of a hazel-nut, impacted near the duodenal papilla of the common bile-duct—dilatation of all the biliary ducts, with abscess of the left lobe of the liver, finding its way into the pericardium and right pleura. In this case there was but slight jaundice, but Dr. Legg remarks that the ducts communicated freely with the abscess. During life all the signs of fluid in the left pleura were present, but no fluid was obtained by paracentesis thoracis; this was explained *post mortem* by the height to which the diaphragm was pushed by the abdominal disease. [The Reporter lately had a child under his care, in whom empyæma of the right side was diagnosed by several experienced auscultators. Paracentesis was performed with considerable relief to the dyspnoea, but after death the disease was found to be an abscess between the diaphragm and upper surface of the liver.—*Rep.*]

Case 10 is a case of hydatids of the liver, omentum, and recto-vesical pouch, jaundice, and xanthelasma (vitiligoidea) of the tongue, eye-lids, and skin of the right temporal region (zygoma), the helix of the right ear, the nape of the neck, bend of the elbows, ball of the thumbs, ball of the left little finger and its ulnar extremity, root of the penis at the junction of the skin of the scrotum with the abdomen, perinæum, and the flexures of the fingers of both hands. There was none below the perinæum. In the eyelids, the part towards the inner canthus was most affected. In the tongue there was one yellow raised spot on the dorsum, and three or four yellowish white ones, varying in size from a split-pea to a sixpence along each side. There was a small cluster at the commencement of the œsophagus, and one yellow spot at the fore part of the larynx. There were also yellow patches in the peritonæum. The microscopic anatomy of the patches on the tongue corresponded with that of the xanthelasmic patches on the skin. In the great omentum there was a hydatid cyst, adherent also to the sigmoid flexure of the colon, of the size of an adult kidney, containing many daughter-cysts. There were three hydatid cysts in the liver; two sterile, one as big as a cocoanut, one of the size of an orange, contained shrivelled membranes, and a quantity of dark solid pigment.

The hydatid cyst between the bladder and rectum was as large as a child's head. It contained no daughter-cysts. [The Reporter has known such cysts, from causing retention, to be tapped for a distended bladder, by men of considerable experience. It is much to be wished that other pathologists attached to large hospitals, whether in London or the country, would give us similar brief accounts of the remarkable cases which from time to time come before them in the *post mortem* theatre, with brief abstracts of the symptoms in life, as far as known. Such records are invaluable to busy men who cannot spare time to read long reports or extended treatises.—*Rep.*] W. BATHURST WOODMAN, M.D.

NORDENSTRÖM AND AXEL KEY ON A CASE OF SARCOMA IN THE VERTEBRAL CANAL; SCURVY WITH HÆMORRHAGE IN THE SPINAL CORD AND ITS MEMBRANES.—Dr. Nordenström relates in the *Hygiea* for 1874 (abstract in *Nordiskt Medicinskt Arkiv*, vol. vi. no. 32) the case of a patient aged seventeen, in whom symptoms of scurvy appeared at Christmas, 1873. At the end of March, 1874, he had paresis of the lower limbs, which was soon followed by complete paralysis of these parts, with paresis of the bladder. In a short time the upper limbs became first paretic and then paralytic; he became gradually weaker, and he died early in April. At the necropsy, besides the usual indications of scurvy, there was found in the spine, at the level of the seventh, eighth, and ninth dorsal vertebrae, a tumour which surrounded the dura mater for about two inches on its posterior and lateral aspects. It was loosely adherent to the dura mater, resembled a decolorised blood-clot, was of a greenish-grey colour, and had a thickness of about one-fifth of an inch. Some small fresh blood-clots were found lying on the dura mater in the upper cervical region.

A careful examination of the parts was made by Professor Axel Key. He found that the tumour was closely connected with the fatty tissue surrounding the dura mater, to which it was only loosely adherent. Microscopic examination showed it to be a round-celled sarcoma, with feebly developed ground-substance and numerous hæmorrhagic deposits. Sarcomatous vegetations could be distinctly seen in the adipose and connective tissue around the dura mater. At the part corresponding to the tumour, the dura mater had undergone sclerotic thickening. Coagulated extravasated blood lay in the sub-arachnoid space; and the cord itself presented a dark appearance, which on section was found to depend on hæmorrhage in its interior. The substance of the cord was loose and of a somewhat ashy appearance. There was also hæmorrhage in the cord for an inch and a-half above the tumour—this being the extent of the portion sent to Professor Key.

It resulted from the examination that the sarcoma did not arise from the dura mater, but from the adipose tissue surrounding it. Key attributes the paresis and paralysis to the scorbutic hæmorrhages in the spinal cord; and considers that these were not caused by the sarcoma, partly because the new growth must have been of older date than the end of March when the paresis suddenly appeared; partly because the examinations of the spinal cord and its membranes, which he has made in conjunction with Retzius, have shown that the sub-arachnoid space is so capacious that a tumour, of even larger size than the one now described, may exist in the spinal canal

without peculiarly pressing on the cord; finally, because the sarcoma would not produce such a rapid development of the paresis as that which occurred.

A. HENRY, M.D.

RECENT PAPERS.

On the Arthropathy of Ataxic Patients. By M. Charcot. (*Gazette des Hôpitaux*, January 23.)

Description of a Diprosopous Triophthalmous Monster. By Dr. Macdonald. (*Edinburgh Medical Journal*, February, 1875.)

The Cause of Death by Chloroform and Ether. By Dr. Schuppert. (*New Orleans Medical and Surgical Journal*, January, 1875.)

MEDICINE.

WIESENER ON A PLUM-STONE IN THE AIR-PASSAGES.—Wiesener related to the Medical Society of Bergen (*Norsk Magazin for Lægevidenskaben*, series iii. vol. iv., abstract in *Nordiskt Medicin. Arkiv*, vol. vi. no. 32) the case of a boy aged five, who in the beginning of September swallowed a plum-stone; immediately afterwards he had cough and vomiting, and appeared well for a quarter of an hour, but was suddenly seized during the day with violent cough and dyspnoea, which lasted an hour. When Wiesener saw him, the same day, there was bronchial fremitus with some dyspnoea; the fremitus was most distinct at the second right costal cartilage; there was loud rhonchus in the remaining parts of both lungs. An emetic was given without relief; and castor-oil was administered. Next day, there was a violent paroxysm of coughing with dyspnoea. Half a plum-stone was found in the evacuations after the castor-oil. There was no obstruction to the passage of an oesophageal sound. For about two months afterwards there were constant dyspnoea, fremitus at the same spot as before, and violent cough, especially at night; the sputa were abundant, frothy, white, later on slightly purulent, and occasionally containing a little blood; coarse rhonchi were heard, especially in the upper lobes. Fever and hectic gradually appeared. Two months after the commencement of the symptoms, he had a more violent paroxysm of cough than before, with hæmoptysis: this was followed by marked improvement and disappearance of the fremitus and rhonchi. Ten days later, he again became worse; the cough became incessant, and the expectoration purulent, often mixed with blood, and foetid. Lying on the right side increased the cough. There was now dulness on percussion in the left infrascapular region; this extended, and was accompanied with coarse râles. After this, the percussion-sound under the left clavicle became tympanic, and the dulness extended to the base of the lung posteriorly, where also was heard a blowing sound, with crackling and mucous rhonchi. The hectic increased. On December 25 he had a violent attack of coughing, during which he ejected a quantity of foetid pus and blood, and a plum-stone, eight lines long and four lines wide. An improvement in all the symptoms quickly followed, and he steadily recovered. There was some contraction of the left side of the chest.

The author believes that the foreign body first lodged in the right bronchus near the bifurcation, and that two months afterwards it passed into the upper lobe of the left lung, causing ulcerative pneumonia, around which pneumonia of reaction was set up. The retraction after the expulsion of the

stone he attributes to the contraction of a cavity. [The reporter in the *Norsk Magazin* suggests that there was empyema.]

A. HENRY, M.D.

SABOURIN ON ATROPHIC SCAPULAR RHEUMATISM AND RHEUMATISMAL MUSCULAR ATROPHY.—Muscular atrophy, a rare complication of rheumatism, shows itself sometimes in the vicinity of the large joints, principally the scapulo-humeral. This atrophy is mostly attributed to rheumatism of the deltoid; but Dr. Sabourin (*Archives Générales de Médecine*, 1874) thinks this very doubtful, and believes that this affection should be called atrophic scapular rheumatism. It is characterised by the following symptoms. The patient, after having been in a cold perspiration, feels pains in his shoulders, which pains, slight at the commencement, increase by degrees. As a rule the joint is neither red nor swollen, and there is no fever. Passive movements of the joint give but little pain, if the patient remain quiescent and do not contract his muscles strongly. The pressure of the articular surfaces against each other does not cause much pain; but spontaneous movements give great pain, and the patient points out as the situation where he feels the pain, not the deltoid, but the outer end of the clavicle, the acromion, and the spine of the scapula, that is to say, the points of insertion of the muscular fibres. The patient may recover, but in the contrary event all movements continue to be painful. Atrophy of the muscles commences and makes persistent progress; it attacks not only the deltoid, but the pectorals, the infraspinatus and supraspinatus muscles, and the other muscles of the scapulo-humeral region to such an extent, that when the patient is undressed there is a great difference in size between the infraspinous and supraspinous fossæ of the two sides. Sometimes the coraco-brachial and biceps muscles are similarly atrophied. With the increase of the atrophy all movements become more and more difficult, and are sometimes quite impossible. Dr. Sabourin has never seen the atrophied muscles regain their normal size and power. Atrophic rheumatism is not peculiar to the scapulo-humeral articulation. When the affection is seated in the knee, the muscles of the thigh, and principally the triceps, become smaller. Atrophic scapular rheumatism may be distinguished from rheumatism of the deltoid by the following characteristics: the pains are seated exclusively at the insertions of the muscles; and in the muscular fasciculi, spots which are painful on pressure in the localities where the fibrous tissue is most superficial; and in the second there is a sensation of fatigue in the muscles which are beginning to atrophy. The disease is not seated in the muscular fibre. Atrophy therefore is produced by the irritative process which, invading successively the tendinous attachments of the muscles, the fibrous envelope, and then the neurilemma of the minute nervous ramifications, of which the nervous element becomes changed, interferes with the nutrition of the muscle. This is, however, but a simple hypothesis of the author which greatly needs confirmation by necropsy,—a means of which he has not availed himself.

FERRAN ON VOMITING OF BLOOD IN HYSTERIA.—M. Louis Ferran's little work on this subject is intended to call attention to symptoms which have hitherto received but little notice. Vomiting of blood by hysterical patients is of frequent

occurrence, and is well described in the numerous cases contained in M. Ferron's book. The author discusses the various explanations hitherto offered of this phenomenon, and offers his own. It is, that hydræmia and plethora have a notable influence, but not sufficient to produce the hæmorrhage. Nearly all the patients observed presented symptoms of chlorosis, so that it appears allowable to assume an incipient cachexia, which first takes effect on the walls of the vessels; and the nervous system, through the medium of the vaso-motor nerves, would play a principal part. These nerves being paralysed, a distension of the vessels would be produced, which, carried too far and exceeding their degree of elasticity and retentibility, would bring on rupture of their tunics. With regard to the differential diagnosis, after having speedily put aside scorbutus, purpura, hæmoptysis, locomotor ataxy and cancer of the stomach, the author finally stops at simple ulcer. Showing the perfect similarity of symptoms existing in the two cases, the author sees that diagnosis is often impossible, but in many cases, however, lays claim to draw from the nature of the pain and the general condition differential signs on which it would be allowable to base an opinion.

UPHAM ON THE TREATMENT OF CEREBRO-SPINAL MENINGITIS.—Dr. J. B. Upham, after a large experience and careful study of the late epidemic in Massachusetts, sums up the indications for treatment as follows, in the *Boston Medical Journal* for September 1874.

Husband the strength; combat the tendency to congestion of the brain and spinal cord; mitigate the intense pain; calm the nervous excitement; nourish and support the system till the exuded morbid products can be removed by the kindly offices of nature. Meantime, minister by all the ways at hand to the comfort and relief of the patient. The choice of means to fulfil these indications is best left to the judgment and good sense of the attending physician.

DOMANSKI ON THE TOPICAL TREATMENT OF DISEASES OF THE LUNGS.—Domanski (*Berliner Clinische Wochenschrift*, January 4, 1875), proposes the inhalation of compressed air charged with medicinal substances in the treatment of bronchitis and of phthisis. He recommends for that purpose oil of turpentine, and also a one per cent. solution of carbolic acid. Such inhalations are always well borne, and do not irritate the larynx. Five patients, who suffered from distressing cough and from copious expectoration, obtained immediate relief under this treatment. Also in one case of phthisis the vital capacity of the lungs is alleged to have increased from 2,850 to 3,100 cubic centimetres, and in another case from 2,100 to 2,300 cubic centimetres.

I. B. BERKART, M.D.

JENNER AND JOHNSON ON CROUP AND DIPHTHERIA.—Sir William Jenner, in a clinical lecture (*Lancet*, January 2 and 16), confesses himself a convert, or almost a convert, to the belief in the identity of croup and diphtheria; he disapproves of the energetic treatment by mercurials and antimony, which is still not unfrequently practised; he recommends tracheotomy, but thinks the hot steamy room and closely curtained bed exhausting to the patient and quite unnecessary. He also describes fully the distinctions between true croup and laryngismus

stridulus, catarrhal laryngitis, and the other kindred affections which occur in childhood.

Dr. George Johnson (*Lancet*, January 2 and 16) also believes in the identity of croup and diphtheria, but he differs from other authorities in thinking that the throat lesion is not an evidence of general disease, but the cause of it; that it is, in fact, analogous to the hard chancre in syphilis, and that consequently the diphtheria can be cured or mitigated by frequent applications to the throat of disinfectant and astringent solutions, as perchloride of iron and chlorinated soda. For the same reason he advises, in laryngeal diphtheria, the spray inhalation of a solution of chlorine or sulphurous acid.

GORE ON THE SLEEPING SICKNESS OF WESTERN AFRICA.—Dr. A. A. Gore, Surgeon-major of the British army, gives, in the *British Medical Journal* for January 2, an account of this curious disease, endemic at some parts of the West Coast of Africa. It begins with swelling of the cervical glands, together with a gradually increasing tendency to sleep; the somnolence becomes more and more constant, until at last the patient cannot even be aroused to take nourishment. The disease lasts from six to twelve months, and is generally fatal. The etiology and pathology are as yet obscure, and the treatment unsatisfactory.

ROUTH ON AN EPIDEMIC OF CONTAGIOUS SORE THROAT.—Dr. Routh describes (*Medical Press and Circular*, January 13) an epidemic of contagious sore throat which occurred in the Cripples' Home. Cases of sore throat and tonsillitis first appeared in this institution in October, 1873, and they continued to occur at intervals until September, 1874, when an epidemic of true scarlet fever broke out; erysipelas was also endemic in the Home during the same period. Dr. Routh seems inclined to believe that the connection between tonsillitis, diphtheria, and scarlet fever is more intimate than it is generally thought to be.

BRUNTON ON KLEIN'S RESEARCHES ON SMALL-POX AND TYPHOID FEVER.—Dr. Lauder Brunton (*Practitioner*, Jan.), thinks that, although we cannot as yet positively assert that the relation of the fungi discovered by Dr. Klein to the intestinal lesion in typhoid fever is that of cause and effect; still this is so exceedingly probable that we may accept it, at least provisionally, as proved, and consider what bearing this new pathology will have upon treatment. Its effect will be, he thinks, to discourage still further all attempts to cut short the disease, when once established, by any therapeutic agents.

PRANGLEY ON DIPHTHERIA.—Mr. T. Prangley (*British Medical Journal*, January 9) gives the experience he has derived from the treatment of fifty-six cases of this disease. He advises the application of tincture of iodine to the throat, and the use of iodised inhalations if the larynx be affected; he orders also a mixture of iron and chlorate of potash, and a liberal amount of food and stimulants.

JOHNSON ON THE TREATMENT OF TYPHOID FEVER.—Dr. George Johnson (*Practitioner*, Jan.), believes strongly in the *vis medicatrix nature* in this disease. He objects especially to acid mixtures and opiates, and thinks a simple milk-diet greatly preferable to the liberal allowance of beef-tea, eggs, etc., which is generally given to typhoid patients.

J. W. LANGMORE, M.D.

RECENT PAPERS.

- Clinical Remarks on Injuries of the Hip. By Mr. T. Annandale. (*Medical Times and Gazette*, January 9.)
- Notes on the Diseases and Accidents incidental to Coal-Mining in Scotland. By Dr. J. Boyd. (*Edinburgh Medical Journal*, January.)
- The Cooling-Pack employed in a Case of Varicella complicated with Convulsions. By Dr. W. B. Hunter. (*Lancet*, January 9.)
- Thrombosis of the Left Innominate Vein during Convalescence from Typhoid Fever. By Dr. T. Cole. (*Medical Times and Gazette*, January 2.)
- On the Cold-Water and Antiseptic Treatment of Typhoid Fever. By Dr. Henry Blanc. (*Lancet*, January 23.)
- On the Alleged Successful Treatment of Typhoid Fever by Cold. By Dr. F. T. Roberts. (*Practitioner*, January.)
- On Ulcerous Endocarditis. By M. Bouchut. (*Gazette des Hôpitaux*, January 28, 1875.)
- Nature and her Medicine. By Professor Bang. (*Dublin Journal of Medical Science*, January 1, 1875.)
- On the Means most generally Useful for Relieving the Cough, Sweating, and Dyspepsia of Chronic Phthisis. By Dr. Little. (*Ibid.*)
- Cerebral Rheumatism. By Dr. Da Costa. (*American Journal of Medical Sciences*, January, 1875.)
- On Suppression of Urine. By Dr. Little. (*Irish Hospital Gazette*, February 1.)
- On Diseases of the Heart and its Great Vessels. By Dr. Moore. (*Irish Hospital Gazette*.)
- Transfusion of Blood. By Dr. Roussel. (*Archives Générales de Médecine*, February, 1875.)
- On Phthisical Laryngitis. By Dr. Sawyer. (*Lancet*, January 30.)

SURGERY.

LEVIS ON TRANSVERSE FRACTURE OF THE PATELLA.—In the *Philadelphia Medical Times* for December 5, 1874, Dr. Levis asks the question, 'Is fracture of the patella amenable to treatment?' His subsequent remarks evidently refer to the transverse fracture of this bone, which is commonly caused by muscular action. He first mentions the plan of treatment which is said to be followed in the wards of the Hôpital Lariboisière in Paris, that of placing the affected limb on an inclined plane, and keeping it steady by a few turns of a roller, without striving to bring the fragments together; a measure perfectly useless, as, whatever is done, the surgeon can rarely expect anything more than a fibrous union, which, after all, does not interfere with locomotion. What this plan studies to avoid is stiffness of the knee-joint, which frequently follows prolonged immobility of the limb.

To this practice and teaching, those of Dr. Levis are diametrically opposed. In three cases which he selects for illustration, and in which fracture of the patella was left without further treatment than a state of rest to the limb, the separation of the fragments remained far greater than he had seen it as the result of ordinary treatment, in which approximation is effected as thoroughly as is usually practicable. As to the stiffness of the knee following the mechanical treatment, it is due to the synovitis and other inflammation of the surroundings of the fracture rather than to 'prolonged immobility,' which is not during a longer period, nor more thorough, than is necessitated in ordinary cases of fracture of the femur or of the tibia. [And with this statement I may remark in passing that I am inclined to concur.—*Rep.*]

In regard to a 'fibrous union not interfering with locomotion,' he knows from practical experience that a long fibrous union, as is likely to result from such want of treatment, as is the custom at Lariboisière, does interfere with normal locomotion. [This is

a fact, one would have thought, well known to practical surgeons. It was taught by the late Mr. Stanley, and the practice, still apparently in vogue at the Lariboisière, but now generally discontinued throughout this country as having no advantage over the horizontal position of the limb, was originally recommended in the very hope of insuring the better approximation of the fragments, and less of the after-trouble which ensues from loss of power in the extensor muscles of the thigh where the fibrous uniting-band is long—as indeed it commonly becomes from the gradual stretching of the tissue which joins the pieces of the broken patella—such after-trouble consisting in the difficulty which the patient experiences in supporting the body when its balance is suddenly disturbed, and in his liability to fall backwards.—*Rep.*]

After subduing the swelling of arthritis and bursal distension, Dr. Levis always approximates the fragments mechanically as soon as may be practicable. With efficient mechanical treatment he has seen a number of cases in which, if true synostosis was not effected, the fibrous union was so short that no separation was appreciable. [It was not within my knowledge, when recently writing on this subject,* that Dr. Levis had interested himself much respecting it. It will be seen, however, that we express ourselves as to the results of mechanical treatment in words almost identical; and, indeed, the results usually attained are so good that this plan of treatment promises to obtain general acceptance. It must be remembered that the contour of the knee is, with this method of treatment, of some consequence in determining the result, for those cases do best in which the bones which form the joint are sharply outlined, thus giving better holdfasts for the mechanical appliances. The plan which is followed in my wards is, in principle, very like that suggested by Dr. Levis, the chief difference being in the more horizontal traction which is made to bear upon the upper fragments. A description of it is given in the book referred to.—*Rep.*] The following is Dr. Levis's arrangement.

'After some experience with various mechanical contrivances for the treatment of fracture of the patella, I am convinced that the best results, with the most comfort to the patient, can be produced by the simple use of long strips of adhesive plaster and roller-bandages, and with either the limb elevated or the trunk kept raised, so as to flex that portion of the quadriceps muscle which has a pelvic origin. The strip holding down the upper fragment should be long enough to reach spirally down the leg, continuing even to the sole of the foot. In order to render the dressing very secure, several strips of adhesive plaster may be super-imposed so as to give strength and solidity. Strips passing in a contrary direction readily maintain the lower fragment in position, as there is no muscular influence tending to its displacement; and a roller bandage, enveloping the entire limb, completes the dressing.'

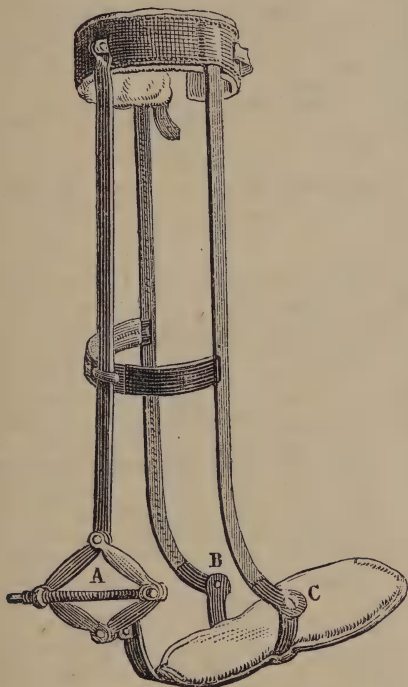
In the letter from which this extract is taken, Dr. Levis adds that 'the treatment of fractures in most European hospitals is often careless, unmechanical, and unphysiological. The most favourable exceptions to this condemnation I saw in one or two hospitals in London.' [This sweeping condemnation from so able a surgeon as we know Dr. Levis to be cannot but arrest attention. It may, however, be fairly asserted

* *St. Bartholomew's Hospital Reports*, vol. x. p. 152.

that the results of the treatment of fractures in this country are, as a rule, so satisfactory, that at all events our appliances cannot be deficient in the requirements necessary for practically dealing with the repair of broken bones and for insuring good length and form when, from the situation of the fracture, such details have to be cared for.—*Rep.*]

GEORGE W. CALLENDER.

ANNANDALE ON A NEW FORM OF BOOT FOR THE TREATMENT OF TALIPES EQUINUS.—Mr. T. Annandale, Surgeon to the Royal Infirmary, of Edinburgh, and Lecturer on Clinical Surgery, writes in the *Edinburgh Medical Journal*, January, 1875, as follows. The boot figured was made, at my suggestion, by Mr. Hilliard in September, 1870, in connection with the treatment of a case of talipes equinus. Since then, the appliance has proved so



successful in treating cases of this deformity in my own practice and also in the practice of others, that I recommend it with much confidence to the consideration of my professional brethren.

I have used it under three conditions.

(1) Without any division of the tendo Achillis. If the distortion be not very severe, the application of the boot without any operation is perfectly successful. One interesting case, treated under this head, was that of a little girl, both of whose feet were affected with the deformity. The apparatus was applied to both feet, and resulted in a complete cure.

(2) With division of the tendo Achillis, and, if necessary, the plantar fascia. In aggravated cases, the division of one or both of these structures is usually required; and when the wounds are healed, the application of the boot gradually stretches the contracted ligaments and other textures, and so completes the cure.

(3) With removal of the head of the astragalus in addition to the division of the tendo Achillis. In

one very aggravated case it was found impossible to relieve the deformity, owing to the displacement and projection of the head of the astragalus on the dorsal surface of the foot. I accordingly excised this portion of bone, divided the tendo Achillis, and, when the wounds were healed, applied the apparatus until the deformity was relieved.

A short description of the boot will be sufficient to make its principle understood. It consists, as shown in the illustration, of a footpiece and leg-support, which are connected together by a movable joint at B and C on each side, so as to allow of flexion and extension of the ankle-joint. The essential part of the appliance is the screw A at the back, which is turned by means of a key. When the screw is turned in one direction it elevates the heel, and the appliance can in this way be adapted accurately to the deformed foot. By turning the screw in the opposite direction, the heel is depressed, and the relief of the distortion gradually and efficiently accomplished by acting upon the contracted tendo Achillis and other textures.

The appliance can either be fitted to an ordinary lacing walking boot, or the foot may be secured to the footpiece by a padded strap crossing over the dorsal surface of the foot and ankle. Sometimes I use a lacing-boot of soft leather, similar to that employed in my boot for talipes varus, to secure the foot. In aggravated cases, or in those requiring operation, a combination of the two latter methods is best. The leg is fastened to the leg-support by a broad padded belt passing round the limb at its upper third.

SANTESSON AND ENVALL ON A CYSTIN CALCULUS IN THE FOSSA NAVICULARIS.—The authors describe in the *Hygiea* for 1874 (abstract in *Nordiskt Mediciniskt Arkiv*, vol. vi. no. xxxii.), the case of a man aged thirty-two, who was admitted into the hospital at Karlskrona in May 1870, with retention of urine. During three years he had suffered frequently from the passage of renal calculus; the last and worst attack having occurred a month before his admission. For a fortnight he had difficulty and pain in micturition, and was sensible of the presence of a foreign body in the urethra, which he gradually brought as far as the glans, where it was arrested and entirely obstructed the flow of urine. Without much difficulty Dr. Envall removed from the fossa navicularis a calculus three-fifths of an inch long, about three-tenths of an inch wide, and weighing a little more than nine grains. It was covered with a layer of mucus and urates. On chemical and microscopic examination, it was found to consist of cystin. The urine, which escaped in large quantity after the removal of the calculus, contained a considerable amount of cystin, partly in the form of gravel, partly as a crystalline deposit on evaporation of the urine; and this continued throughout the eight days during which the patient remained in the hospital. He said that his mother and three brothers and sisters were similarly affected; but no further information could be obtained. In commenting on the case, Dr. Santesson remarks that cystin calculi are very rare in Sweden.

WIESENER ON HERNIOTOMY IN A PREGNANT WOMAN—Wiesener (*Norsk Magazin för Lægevidenskaben*) operated on a woman, aged forty, in the ninth month of pregnancy, for an incarcerated crural hernia of the right side. The result was successful.

A. HENRY, M.D.

MAUNDER ON ANEURISM.—Mr. Maunder's first Lettsomian lecture on the diseases of arteries (*Lancet*, January 2 and 16) is on aneurism. It is illustrated by a table showing the results of twenty-seven cases of the ligation of arteries performed by Mr. Maunder, and by reference to numerous interesting cases which have occurred in the practice of the London Hospital. Mr. Maunder speaks highly of the value of compression, especially digital, when it can be carried on with the necessary patience and strict attention to details. In cases of carotid and axillary aneurism, especially, he advises a patient trial of compression before proceeding to ligation, though at the London Hospital ligation of the carotid has been unusually successful (six recoveries out of seven cases). Mr. Maunder approved of the distal operation for aneurism of the innominate artery if medical treatment have failed. In the treatment of aneurisms of the lower limb, compression should not be persevered in too long, as Mr. Holmes's statistics show that this may influence unfavourably the result of a subsequent operation. In the case of popliteal aneurisms, if not too large, flexion should have a fair trial.

BRYANT ON THE LEAST SACRIFICE OF PARTS AS A LEADING PRINCIPLE OF SURGICAL PRACTICE.—In a paper read before the Medical Society of London (*Lancet*, January 23 and 30) Mr. Bryant thinks that the maxim that 'in cases of disease or accident no more of the body is to be taken away than the necessities of the case demand,' is not so generally followed as it should be by surgeons of the present day. He gives numerous examples of his own practice in cases of disease and injury of the hand and foot; and then, applying the same principle to the surgery of the joints, he advocates free incisions and the removal of necrosed bone, if present, instead of formal resection. He relates about twenty cases of advanced disease of the ankle, knee, hip, elbow, and shoulder thus treated successfully, and in most of the cases a movable joint resulted; most of the patients, however, were children.

ANNANDALE ON ANTISEPTIC INCISIONS AS AN AID TO SURGICAL DIAGNOSIS.—Mr. Thomas Annandale (*Edinburgh Medical Journal*, January 1875), advocates the more frequent use of exploratory incisions in the diagnosis of cases of deep-seated abscess, of morbid growths of doubtful nature, and of obscure joint-disease. He says that, by the employment of the antiseptic method, and, where practicable, of Esmarch's bandage, such incisions are perfectly free from risk to the patient, and afford far more certain and valuable information than can be gained by the use of the aspirator, grooved needle, or exploring trocar.

THOMPSON ON OPERATIONS FOR THE RELIEF OF ADVANCED PROSTATIC DISEASE.—Sir Henry Thompson (*Lancet*, January 2), remarks that, in cases of long-standing prostatic disease, the bladder often becomes very irritable; the patient is tormented by an almost constant desire to micturate, and the catheter is in hourly requisition. Under these circumstances, Sir Henry Thompson recommends puncture of the bladder behind the pubes. He gives directions for performing the operation, which, if due precautions are taken, is not, he says, a serious one for the patient.

THOMPSON ON A CASE OF EVERSION OF THE BLADDER.—Dr. George Thompson relates (*Lancet*, January 9), a case of this rare accident occurring in a lady during an attack of acute cystitis. It was caused apparently by the presence of phosphatic deposit. The displacement was readily reduced, and no bad results followed.

J. W. LANGMORE, M.D.

RECENT PAPERS.

- Laparotomy and Enterotomy in Ileus. By Dr. Hobner. (*Nordiskt Medicinskt Arkiv*, vol. vii. part 4.)
 Relation of Tubercle to some other Affections of the Testis. By W. S. Savory. (*Lancet*, January 30.)
 Treatment of Anal Fistula by the Elastic Ligature. By Dr. Courty. (*Bulletin Général de Thérapeutique*, January 30.)
 On the Bloodless Removal of Elephantoid Tumours of the Scrotum. By Surgeon-Major T. B. Partridge. (*Indian Medical Gazette*, January 1, 1875.)
 Tracheotomy in Croup. By Dr. J. C. Jaget. (*New Orleans Medical and Surgical Journal*, January, 1875.)
 On Bony Lesions, Spontaneous Fractures, and Luxations in Ataxic Subjects. By M. Charcot. (*Gazette des Hôpitaux*, January 30, 1875.)
 Aneurism of Femoral Artery treated by Flexion. By Dr. Eldridge. (*American Journal of Medical Sciences*, January, 1875.)

OPHTHALMOLOGY AND OTOLOGY.

ROOSA ON DISEASES OF THE INTERNAL EAR.—In a paper in the *American Journal of Medical Sciences* for October, 1874, entitled, 'A Contribution to the Etiology of Diseases of the Internal Ear,' Professor Roosa gives a short *résumé* of some cases which have occurred in his private practice. He finds that 'patients with disease of the internal ear do not usually complain of tinnitus; they usually speak of it as a low murmuring noise, to which they pay very little attention; whereas those who have a tinnitus that is caused by pressure through the fenestræ upon the labyrinth—that is, from disease of the middle or external ear—are usually very much disturbed by it.' He has had some experience among boiler-makers, and says they are nearly all hard of hearing; those who are not, having, as a rule, used a plug of cotton-wool in the external meatus. He attributes the hardness of hearing found in boiler-makers to some lesion of the labyrinth, probably of the cochlea, 'for the chief symptoms are loss of hearing and tinnitus aurium; there is no vertigo or staggering in the gait.' In the cases caused by hæmorrhage into the ear, one would expect that Bright's disease would have played an important part; but Roosa says that in the few cases that have been observed of hæmorrhage into the ear in cases of Bright's disease, the bleeding occurred in the middle, and not in the internal ear. He believes cases of Menière's disease to arise from hæmorrhagic effusion. He doubts that quinine is of itself sufficient to produce disease of the internal or middle ear, but is positive that large doses will aggravate a previously existing aural inflammation, and place it beyond the possibility of cure. He says the tinnitus aurium produced by this drug 'must be due to a congestion of the ultimate fibres of the nerve.' Of sixty-five cases he attributes four to traumatic injury, three to long continued exposure to concussions, eleven to hæmorrhage into the internal ear, two to inflammation of the parotid gland, eight to cerebro-

spinal meningitis, two to scarlatina, one to measles, seven to basilar meningitis, eight to primary inflammation of the labyrinth, four doubtfully to the internal administration of quinine, one to arrested development, and fourteen to unknown causes.

BECKER ON TRANSPLANTATION OF RABBIT'S CONJUNCTIVA INTO THE HUMAN CONJUNCTIVA.—In the *Wiener Medizinische Wochenschrift* for November 14, 1874, Professor Otto Becker, after reviewing shortly the successfully treated cases of Dr. Wolfe, of Glasgow relates two cases of symblepharon on which he has operated in the same way. In the one case, he used a portion of the conjunctiva bulbi of a white rabbit, about eight millimètres square. In the other, in which the loss of substance after loosening the symblepharon was much larger, and he therefore desired a large portion of conjunctiva, he removed the cartilage of the palpebra tertia, and employed the conjunctiva, which covers both sides of that lid. The latter he found more difficult to flatten out well than the conjunctiva from the bulb. He finds that the flap, after removal from the rabbit's eye, is very thin, and has a great tendency to curl, and that, unless notice be taken by marking the branch of the forceps which is applied to the epithelial side, it is difficult to recognise the one surface from the other. He thinks fine needles with very acute angles are necessary for the operation, and recommends those made for him by Luer, of Paris. The transplanted portion remained quiet, not changing its form or colour for the first forty-eight hours, but on the third day vessels could be recognised in it. On the sixth day the suture at the corneal side gave way, and the flap took on a three-sided form; but the result was satisfactory, as the lids were free, the eyeball movable, and the transplanted portion thoroughly engrafted on to the normal conjunctiva, and taking part in its circulation. The foreign tissue was, however, always recognisable by its lighter colour. The other case, on account of the restlessness of the patient, a boy four years of age, was not so successful, but sufficiently so to encourage Professor Becker to recommend the operation. As sutures he uses very fine untwisted silk, which he has used for some time in all conjunctival wounds requiring sutures, and which, he says, do not require to be removed. The suture may suppurate out without causing any complaint from the patient; but it frequently is imbedded in the tissue for years without the patient being aware of its presence.

POLITZER ON THE REMOVAL OF MOVABLE EXUDATION FROM THE TYMPANIC CAVITY.—In the *Wiener Medizinische Wochenschrift* for October 24, Professor Politzer communicates a method of removing exudation from the tympanic cavity. He says that the exudation in the middle ear shows either a purulent character with violent reactionary symptoms, or a serous syrup-like or tenacious slimy character without such symptoms. The exudation exhibiting the former character is much more readily absorbed than the latter, which may lie in the cavity for weeks or months, even when the exudative process which called it into existence has passed away. The mere presence of such a body in the tympanic cavity is sufficient to, and does, cause irritation, hyperæmia, increased secretion, and disturbances of the hearing power. These symptoms may pass on to violent inflammation, with formation of pus and all the unpleasant consequences attending its presence in such a narrow chamber

surrounded with delicate structures. The means which Professor Politzer describes for the removal of such exudations, is the placing of the patient's head forwards and to the opposite side to that from which the exudation has to be removed, so that, the cavity being upwards and the mouth of the Eustachian tube directly downwards, the fluid in the cavity will gravitate to a position directly over the opening of the Eustachian tube; and on the opening of the tube by the air-douche from Politzer's bag, the secretion will, if sufficiently fluid, pass at once into the tube, and so relieve the cavity of its presence. [The reporter uses the same position for the removal of fluid by means of Weber-Liel's elastic catheter, or the usual catheter, the former of which has the advantage of not requiring the passage of the air-douche through the fluid, which is apt to cause its dispersion across the surfaces of the tympanic walls and mastoid cells.—*Rep.*]

W. LAIDLAW PURVES.

RECENT PAPERS.

On Entropion of the Upper Eyelid operated on by Snellen's Method simplified. By Dr. Brière. (*Bulletin Général de Thérapeutique*, December 15.)

Report on Aural Surgery. By H. R. Swanzy. (*Irish Hospital Gazette*.)

Removal of Foreign Bodies from the Ear. By Dr. Cleland. (*Lancet*, December 5.)

Abscess of the Ear, followed by Abscess of the Brain. By Dr. E. H. Clarke. (Brown-Séquard's *Archives of Med.*, January, 1875.)

On the Operation for Cataract by Linear Extraction. By M. Giraud-Teulon. (*Gazette des Hôpitaux*, December 29.)

Cases of Diseases of the Retina, and a new Remedy for Amblyopia Potatorum. (*Philadelphia Medical and Surgical Reporter*, December 19, 1874.)

Auditory Vertigo. By Dr. Labadie Lagrave. (*Gazette Hebdomadaire*, January 9.)

MISCELLANY.

CREMATION.—The ministry of the Duchy of Coburg has given permission to the society for cremation in Gotha, to carry its principles into practice; and measures are accordingly being taken to that effect.

PRIZE IN PSYCHOLOGICAL MEDICINE.—Dr. Bonaccossa, of Turin, has presented to the Royal Academy of Medicine in that city a sum of money in the Italian funds, sufficient to produce an annual income of 150 lire (6*l.*), the proceeds to be awarded every fifth year to the author of the best essay on a subject in psychological medicine, to be announced publicly within the first three months of each quinquennial period.

M. PAJOT, who has lectured on obstetrics at the Paris Faculty of Medicine for the last thirty years, lately announced his intention of resigning his chair and retiring into private life. But six hundred of his pupils, warmly seconded by Professor Wurtz, dean of the Faculty, addressed a memorial to him, begging him to reconsider his determination; and M. Pajot, touched by these gratifying evidences of gratitude and sympathy, has consented to resume his course during the ensuing session. The retirement of M. Pajot would indeed be a real loss to the professional staff of the Paris Faculty; only sixty years of age, he is still in the full zenith of his mental powers. He possesses in great perfection the faculty of enchaining the attention of his hearers, and knows well how to enliven the driest details by an apt illustration, a well-timed anecdote, or a witty saying, whilst his thorough earnestness in his endeavour to impart information commands the attentive hearing and respect of his pupils.

THE GERMAN ASSOCIATION OF NATURALISTS AND PHYSICIANS.—Preparations are being made for the next meeting of this association, which will be held at Gratz, the capital of Styria. A committee has been formed of the university professors, with some of the citizens, and the burgomaster of Gratz has been appointed president. The ministry of the interior has made a donation of 10,000 florins (1,000*l.*) towards the expenses; and the provincial committee and the municipality of Gratz have each granted 500*l.*

MARRIAGE AND LONGEVITY.—In his recently published *Study of Sociology*, Mr. Herbert Spencer assails a theory that has long been current with regard to marriage and longevity. That married life is favourable to longevity has generally been regarded as satisfactorily proved by numerous statistics, showing, almost without exception, a greater longevity on the part of the married. When the ratio of deaths in the two classes stand at ten to four and even twenty to four, there would appear to be little room for doubt. But to this astute social scientist the evidence, strong as it seems, furnishes no warrant for the current belief. He regards the case as a substitution of cause for effect. In other words, greater longevity is not the consequence of marriage; on the contrary, marriages are clearly traceable to influences favouring longevity. The principles of natural selection work so strongly in deciding between the benedicts and the bachelors, that the long livers are drawn to the former and short livers to the latter. Marriage, Mr. Spencer holds, is regulated by ability to meet its responsibilities. The qualities which give the advantage here are intellectual and bodily vigour, prudence, and self-control; these, too, are the qualities which determine a prolonged life or a premature death. An even more direct relation is to be found in the instincts which lead most strongly to marriage. The reproductive instincts and emotions are strong in proportion as the surplus vital energy is great, and this in turn implies an organisation likely to last: 'so that, in fact, the superiority of physique, which is accompanied by strength of the instincts and emotions causing marriage, is a superiority of physique also conducive to longevity.' Another influence tells in the same direction. Marriage is determined by the preference of women as well as the desires of men, and other things being equal, women are attracted towards men of physical and intellectual power, refusing the malformed, diseased, and ill-developed types. In the operation of these three elements Mr. Spencer finds all that is needed to account for the striking difference of longevity between the classes, and declares that 'the figures given afford no proof that marriage and longevity are cause and consequence; but they simply verify the inference which might be drawn *à priori*, that marriage and longevity are concomitant results of the same cause.'

THE PHYSIOLOGY OF VERSIFICATION.—A curious and interesting paper by Dr. Oliver Wendell Holmes, published in the *Boston Medical and Surgical Journal* for January, 1875, is intended to prove that respiration has an intimate relation with the structure of metrical compositions. He tells us that in his opinion the fact that the form of verse is conditioned by economy of those muscular movements which ensure the oxygenation of the blood, is one on which many have acted without knowing why they did so. He first considers the natural rate of respiration. Of 1,817 individuals who were the subject of Mr. Hutchinson's observations, 'the great majority (1,731) breathed from sixteen to twenty-four times per minute. Nearly a third breathed twenty times per minute, a number which may be taken as the average' (Flint's *Physiology*, vol. i. p. 392). He continues, 'The "fatal facility," of the octosyllabic measure has often been spoken of, without any reference to its real cause. The reason why eight syllable verse is so singularly easy to read aloud is that it follows more exactly than any other measure the natural rhythm of respiration. In reading aloud in the ordinary way from *The Lay of the Last Minstrel*, from *In Memoriam*, or from *Hiawatha*, all written in this measure, the first two in iambs, or short-

longs, the last in trochaics or long-shorts, it will be found that not less than sixteen nor more than twenty-four lines will be spoken in a minute, probably about twenty. It is plain, therefore, that if one reads twenty lines in a minute; and naturally breathes the same number of times during that minute, he will pronounce one line to each expiration, taking advantage of the pause at its close for inspiration. The only effort required is that of vocalising and articulating; the breathing takes care of itself, not even demanding a thought except where the sense may require a pause in the middle of a line. The very fault found with these octosyllabic lines is that they slip away too fluently, and run easily into a monotonous sing-song. In speaking the ten syllable or heroic line, that of Pope's *Homer*, it will be found that about fourteen lines will be pronounced in the minute. If a breath is allowed to each line the respiration will be longer and slower than natural, and a sense of effort and fatigue will soon be the consequence. It will be remembered, however, that the cæura, or pause in the course of the line, comes in at irregular intervals as a 'breathing-place,' which term is its definition when applied to music. This gives a degree of relief, but its management requires care in reading, and it entirely breaks up the natural rhythm of breathing. The fourteen syllable verse, that of Chapman's *Homer*, the common metre of our hymn-books, is broken in reading into alternate lines of eight and six syllables. This also is exceedingly easy reading, allowing a line to each expiration, and giving time for a little longer rest than usual at the close of the six syllable line. The twelve syllable line, that of Drayton's *Polyolbion*, is almost intolerable, from its essentially unphysiological construction. One can read the ten syllable line in a single expiration without any considerable effort. One instinctively divides the fourteen syllable line so as to accommodate it to the respiratory rhythm. But the twelve syllable line is too much for one expiration and not enough for two. For this reason, doubtless, it has been instinctively avoided by almost all writers in every period of our literature. The long measure of Tennyson's *Maud* has lines of a length varying from fourteen to seventeen syllables, which are irregularly divided in reading for the respiratory pause. Where the sense does not require a break at some point of the line we divide it by accents, three in each half, no matter what the number of syllables; but the breaks which the sense requires so interfere with the regularity of the breathing as to make these parts of *Maud* among the most difficult verses to read aloud, almost as difficult as the *Polyolbion*.'

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The London Medical Record.

WEDNESDAY, FEBRUARY 17, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON ALCOHOL. By B. W. RICHARDSON,
M.D., F.R.S.*

(Concluded from page 78.)

Does Alcohol increase the Animal Heat?—In putting before you this inquiry, I am prepared to answer it by direct knowledge gained from individual experiment. In the course of some researches I had to make for reports rendered to the British Association for the Advancement of Science, it became part of my duty to ascertain what effect certain chemical agents exert over the animal temperature. Amongst these agents was alcohol.

At the time when my researches commenced, viz., in the year 1864, there was nothing definitely known on the subject. The thermometer was not then in such general use as it is now, and it had not been applied, as far as I know, to this particular determination. Generally, however, it had been assumed by the majority of persons that alcohol warms the body, and to 'take just a drop to keep out the cold' had been the practice which the experience of ages seemed to justify. It is fair, at the same time, to say that Dr. Lees, and some other far-seeing observers, had for many years held and asserted a different view. They had not entered into minuteness of experimental detail, but they had observed from the effects of alcohol on those who had been exposed to cold in the extreme north and in other regions of ice and snow, that the drinkers did not live on like other men. Thus, in so far as I had what is called experience to guide me, I found conflict of opinion. It was not my business, however, to accept guidance of this kind, but to appeal to the only safe guide, the direct interrogation of nature by experiment.

It were impossible for me to recount the details of the long research—extending, with intervals of rest, for three years—which was conducted in my laboratory, to determine the influence of alcohol on the animal temperature. The effects were observed on warm-blooded animals of different kinds, including birds; on the human subject in health, and on the same subject under alcoholic disease. Similar experiments were made in different external temperatures of the air, ranging from summer heat to ten degrees below freezing-point. The whole were carried on from experiment to experiment, without regard either to comparison or result, until the general character of result began to proclaim that a rule existed which could hardly be considered exceptional. The facts obtained I may epitomise as follows.

The progressive stages of change of animal function from alcohol are four in number. The first is a stage of excitement, when there exists that relaxation

and injection of the blood-vessels of the minute circulation with which we have become conversant. The second is the stage of excitement, with some muscular inability and deficient automatic control. The third is a stage of rambling, incoherent, emotional excitement, with loss of voluntary muscular power, and ending in helpless unconsciousness. The fourth and final stage is that in which the heart itself begins to fail, and in which death in extreme instances of intoxication closes the scene. These stages are developed in all the warm-blooded animals, and the changes of temperature throughout the whole are relatively the same.

In the first stage, the external temperature of the body is raised. In birds—pigeons—the rise may amount to a full degree, on Fahrenheit's scale; in mammals it rarely exceeds half a degree. In man it may rise to half a degree, and in the confirmed inebriate, in whom the cutaneous vessels are readily engorged, I have seen it run up to a degree and a half. In this stage, the effect on the extremities of the nerves is that of a warm glow, like what is experienced during the reaction from cold.

The heat felt in this stage might be considered as due to the combustion of the alcohol; it is not so; it is in truth a process of cooling. It is from the unfolding of the larger sheet of the warm blood and from the quicker radiation of heat from that larger surface. During this stage, which is comparatively brief, the internal temperature is declining; the expired air from the lungs is indicating, not an increase, but the first period of reduction in the amount of carbonic acid, and the reddened surface of the body is so reduced in tonicity that cold applied to it increases the suffusion. It is this most deceptive stage that led the older observers into the error that alcohol warms the body.

In the second stage, the temperature first comes down to its natural standard, and then declines below what is natural. The fall is not considerable. In birds it reaches from one and a half to two degrees. In other animals, dogs and guinea-pigs, it rarely exceeds one degree; in man it is confined to three-fourths of a degree. In a room at a temperature of 65° or 70° the decrease of temperature may not actually be detected, but it is quickly detected if the person in whom it is present pass into a colder atmosphere, and it lasts, even when the further supply of alcohol is cut off, for a long period, viz., from two and a half to three hours. It is much prolonged by absence of food.

During the third degree the fall of temperature rapidly increases, and as the fourth stage is approached it reaches a decline that becomes actually dangerous. In birds the reduction may be five degrees and a half, and in other animals three. In man it is often from two and a half to three degrees. There is always during this stage a profound sleep or coma, and while this lasts the temperature continues reduced.

It is here worthy of incidental notice that, as a rule, the sleep of apoplexy and the sleep of drunkenness may be distinguished by a marked difference in respect to temperature. In apoplexy the temperature of the body is above, in drunkenness below, the natural standard of 98° of Fahrenheit's scale.

Under favourable circumstances, a long period is required before the body recovers its natural warmth after such reduction of heat as follows the extreme stage of alcoholic intoxication. With the first conscious movements of recovery there is a faint rise,

* Cantor Lecture, No. IV. *Journal of the Society of Arts.*

but such is the depression, that these very movements exhaust and lead to a further reduction. I have known as long a period as three days required, in man, to bring back a steady natural return of the full animal warmth.

Through every stage, then, of the action of alcohol—barring that first stage of excitement—I found a reduction of animal heat to be the special action of the poison. To make the research more perfectly reliable, I combined the action of alcohol with that of cold. A warm-blooded animal, insensibly asleep in the third stage of alcoholic narcotism, was placed in a chamber—the air of which was reduced in temperature to ten degrees below freezing-point—together with another similar animal which had received no alcohol. They both sleep under these circumstances, but the alcoholic sleeps to die; the other simply sleeps more deeply than is natural, sleeps and lives so long as the store of food with which it is charged continues to support life. Within this bound it awakes in a warmer air, uninjured, though the degree of cold be carried even to the act of freezing of the extreme parts.

One more portion of evidence completes the research on the influence of alcohol on the animal temperature. As there is a decrease of temperature from alcohol, so there is proportionately a decrease in the amount of the natural product of the combustion of the body. The quantity of carbonic acid exhaled by the breath is proportionately diminished with the decline of the animal heat. In the extreme stage of alcoholic insensibility—short of the actually dangerous—the amount of carbonic acid exhaled by the animal and given off into the chamber I constructed for the purposes of observations was reduced to one-third below the natural standard. On the human subject in this stage of insensibility, the quantity of carbonic acid exhaled has not been measured. But in the earlier stage of alcoholic derangement of function, the exhaled gas was measured with much care by another earnest worker, whose recent death we have also to deplore, Dr. Edward Smith. In these early stages, Dr. Smith found that the amount of carbonic acid was reduced in man, as I have found it in the lower animals, so that the fact of the general reduction may be considered as established beyond dispute.

We are landed then at last on this basis of knowledge. An agent that will burn and give forth heat and product of combustion outside the body, and which is obviously decomposed within the body, reduces the animal temperature, and prevents the yield of so much product of combustion as is actually natural to the organic life.

What is the inference? The inference is that the alcohol is not burned after the manner of a food which supports animal combustion; but that it is decomposed into secondary products, by oxidation, at the expense of the oxygen which ought to be applied for the natural heating of the body.

For some time to come the physiological world will be studiously intent on the discovery of the mode by which alcohol is removed from the organism. It is a subject on which I shall one day be able to speak, I hope, with some degree of experimental certainty, but on which at this moment I am not prepared to offer more than an indication of the probable course of research. I may venture to add, in advance, two or three suggestions to which my researches, as far as they go, point.

Firstly, I believe there is a certain determinable

degree of saturation of the blood with alcohol, within which degree all the alcohol is disposed of by its decomposition. Beyond that degree the oxidation is arrested, and then there is an accumulation of alcohol, with avoidance of it, in the unchanged state, in the secretions.

Secondly, the change of decomposition of the alcohol in its course through the minute circulation, in which it is transformed, is not into carbonic acid and water, as though it were burned, but into a new soluble chemical substance, probably aldehyde, which returns by the veins into the great channels of the circulation.

Thirdly, I think I have made out that there is an outlet for the alcohol, or for the fluid product of its decomposition into the alimentary canal, through the secretion of the liver. Thrown into the canal it is, I believe, subjected there to further oxidation, is in fact oxidised by a process of fermentation attended with the active development of gaseous substances. From this surface the acid product is in turn re-absorbed in great part and carried into the circulation, and is disposed of by combination with bases or by further oxidation.

Here, however, I leave the theoretical point to revert to the practical; and the practical is this, that alcohol cannot, by any ingenuity of excuse for it, be classified amongst the foods of man. It neither supplies matter for construction nor for heat. On the contrary, it injures construction and it reduces temperature.

Effect on Muscular Power.—Behind the question of the effect of alcohol upon the animal temperature, was another subject for inquiry. It was fair to ask whether, if heat were not produced by it, some additional stimulus might be communicated by the spirit to the muscular fibre. There is nothing in what we see relating to the action of alcohol in man that would lead us to suppose it capable of giving an increased muscular power, and it is certain that animals subjected even for short periods of time to its influences lose their power for work in a marked degree. Indeed, if we were to treat our domestic animals with this agent in the same manner that we treat ourselves, we should soon have none that were tameable, none that were workable, and none that were edible. I thought it, nevertheless, worth the inquiry whether at any stage of the alcoholic excitement living muscle could be induced to show an extra amount of power; I therefore submitted muscle to this test. I gently weighted the hinder limb of a frog until the power of contraction was just overcome; then by a measured electrical current I stimulated the muscle to extra contraction, and determined the increase of weight that could thus be lifted. This decided upon in the healthy animal, the trial was repeated some days later on the same animal after it had received alcohol in sufficient quantity to induce the various stages of alcoholic modification of function. The result was that through every stage the response to the electrical current was enfeebled, and, so soon as narcotism was developed by the spirit, it was so enfeebled that less than half the weight that could be lifted in the previous trial by the natural effort of the animal could not now even be raised under the electrical excitation.

In man and in animals, during the period between the first and third stages of alcoholic disturbance, there is often muscular excitement, which passes for increased muscular power. The muscles are then

truly more rapidly stimulated into motion by the nervous tumult, but the muscular power is actually enfeebled.

Hygienic Considerations.—The facts I have endeavoured to lay before you will suggest to your minds many thoughts bearing upon the health of individuals and communities, in so far as health is affected by the potent agent, alcohol. I need hardly, indeed, presume to offer any suggestions, but one or two of a specially practical and everyday character may be ventured.

I am bound to intimate that the popular idea of administering alcohol for the purpose of sustaining the animal warmth is an entire and dangerous error, and that, when it is brought into practice during extremely cold weather, it is calculated to lead even to fatal consequences, from the readiness with which it permits the blood to become congested in the vital organs. I cannot too forcibly impress the fact that cold and alcohol act, physiologically, in the same manner, and that, combined in action, every danger resulting from either agent is doubled.

Whenever we see a person disposed to meet the effects of cold by strong drink, it is our duty to endeavour to check that effort; and whenever we see an unfortunate person under the influence of alcohol, it is our duty to suggest warmth as the best means for his recovery. These facts prompt many other useful ideas of detail, in our common life. If, for instance, our police were taught the simple art of taking the animal temperature of those persons whom they find in the streets in a state of insensibility, the result would be most beneficial. The operation is one that hundreds of nurses now carry out daily, and, applied by our police-officers, it would enable them not only to detect the difference between a man in an apoplectic fit and a man intoxicated, but would suggest naturally the instant abolition of the barbarous practice of thrusting the really intoxicated into a cold and damp cell, which to such a one is actually an anteroom to the grave.

Once more: I would earnestly impress that the systematic administration of alcohol for the purpose of giving and sustaining strength is an entire delusion. I am not going to say that occasions do not arise when an enfeebled or fainting heart is temporarily relieved by the relaxation of the vessels which alcohol, on its diffusion through the blood, induces; but that this spirit gives any persistent increase of power by which men are enabled to perform more persistent work is a mistake as serious as it is universal.

Again, the belief that alcohol may be used with advantage to fatten the body is, when it is acted upon, fraught with danger. For if we could successfully fatten the body, we should but destroy it the more swiftly and surely; and as the fattening which follows the use of alcohol is not confined to the external development of fat, but extends to a degeneration through the minute structures of the vital organs, including the heart itself, the danger is painfully apparent.

In conclusion, whatever good can come from alcohol, or whatever evil, is all included in that primary physiological and luxurious action of the agent upon the nervous supply of the circulation to which I have endeavoured earnestly to direct your minds. If it be really a luxury for the heart to be lifted up by alcohol; for the blood to course more swiftly through the brain; for the thoughts to flow more vehemently; for words to come more fluently; for emotions to rise ecstatically, and for life to rush

on beyond the rate set by nature, then those who desire the luxury must enjoy it—with the consequences.

OERTEL ON THE TREATMENT OF DIPHTHERIA.*

(Continued from page 81.)

In contrast to these various methods of limiting the further progress of diphtheria by antiphlogistic, caustic, astringent, and similar means, the intent of which is to combat the inflammatory reaction of the mucous membrane caused by the fungi, is the effort which has been made to excite energetically a rapid and abundant production of pus. I endeavoured to solve this problem by the employment of moist warmth, in the form of hot vapour, by means of which a temperature of from 113° to 122° Fahr. was kept up for a considerable time in the mouth of the patient, and I could at once determine the appearances of reaction due to the attempt; viz., an abundant suppuration, causing demarcation.

The first appearances which are observed as a result of the operation of hot vapour are always constant, and distinctly noticeable as early as at the end of from twelve to eighteen hours, during which the inhalation has been practised hourly or half-hourly for a quarter of an hour at a time; but these effects will be developed more slowly if a considerable fibrinous exudation, with partial decomposition of the pseudo-membranes, have already taken place, and the capacity for reaction of the tissues be almost extinguished; or they will not be induced at all where the process has already run into septicæmia. The margins of the diphtheritic deposits, which generally pass imperceptibly into the surrounding tissues, become more sharply defined, and contrast strikingly with the intensely reddened mucous membrane. The membranes, therefore, at the first glance seem enlarged. In some places, too, it will appear as if new membranes had formed where before there had been none. This is due to the fact that they had previously escaped notice from their small size, and from the presence of mucus, which concealed their outlines. Thus it will appear as if the disease had increased in intensity. The operation of the hot vapour, however, has been to induce a considerable excretion of pus-corpuscles, and these have infiltrated the epithelium, or its delicate network, which was already infected and grown full of micrococci. Under longer continued operation of the hot steam, soon no further enlargement of the patches will be noticed. The pseudo-membranes become gradually thicker, and are raised up from the mucous membrane; their whitish-gray colour becomes more yellowish or of a dirty grey, and their surfaces wrinkled and uneven, while the redness of the adjacent mucous membrane also fades and the swelling disappears. After some days we obtain with the necessary amount of suppuration a complete detachment of the pseudo-membranes, and they are expectorated by the patient, either whole, or in single scarcely noticeable fragments, or are possibly in part swallowed. The thickness of such membranes, as a rule, never amounts to less than $\frac{1}{16}$ of an inch.

In the application of the hot vapour an ordinary broad pot, with boiling water or infusion of mallows, can be used, from which the vapour as it forms is conducted through a suitable funnel, as hot and abundant as possible, into the mouth of the patient;

* *Ziemssen's Cyclopædia.*

or, if we prefer it, we may use an apparatus which is expressly made for such purposes. This apparatus, which I have used for several years, wonderfully facilitates the employment of hot vapour, especially with children. The wide conducting-tube is simply placed in front of the open mouth, or is allowed to be taken into the mouth itself, and an uniform development and introduction of the hot vapour is thus secured. With this apparatus we can at the same time accomplish a thorough cleansing of the cavity of the mouth and throat from mucus and the fluids of the mouth, by employing a fluid which dissolves the mucus, but which at the same time acts indifferently on the organism. Such a fluid, steadily flowing over the mucous membrane, washes away masses of mucus, remnants of food, and other products of decomposition. We can also use suitable weak solutions of chloride of sodium, or chlorate of potash or other alkalies; only we must avoid strong disinfecting substances, such as carbolic acid or permanganate of potash, because after long-continued inhalation, more or less of these substances is always carried into the bronchi, and may produce symptoms of irritation.

Solutions of common salt or chlorate of potash, if this latter be preferred, of the strength of from ten to fifteen grains to the ounce, produce no injurious effect upon the organism; that is, they act perfectly indifferently when so used; and a long series of forced experiments, such as are not usually carried out in practice, never resulted in an affection of the bronchi or of the lungs. How long these operations should last, and how often they should be repeated, must be determined by the degree of the affection; and it should not be forgotten that the shorter we make the sittings and the longer the intervals, so much the more slow and uncertain we find the reaction, while the disease thereby gains in intensity and extent. If, therefore, we aim at producing a rapid and free suppuration, the inhalations must be practised as often and as long as possible, in quarter-hour sittings every half hour, and on the first and second day three or at the utmost four hours of sleep must suffice for the patient, while nourishment must be supplied in small portions in the intervals between the separate sittings. Later on, when the pseudo-membranes have been partially cast off, as well as in certain lighter cases, hourly sittings of about a quarter of an hour's duration suffice, and a longer time, six or eight hours, can be allowed for the night's rest of the patient. Even when a complete separation of the membranes has taken place, so long as a secretion of pus is still perceived at the diseased places on the surface of the mucous membrane, occasional inhalations should still be practised every two or three hours, and these are also finally to be suspended after the cleansing of the mouth and throat is complete. By employing the atomising apparatus, a cleansing of the mouth and throat can also be combined with the inhalations. If a simpler mechanism be employed, these cavities will have to be kept clear of the accumulated masses by industrious washing and syringing. Disinfection and destruction of the micrococcus growths, of the products of infection and decomposition, will not, of course, be attained thereby.

Prevention of Septic Disease and General Systemic Poisoning.—We possess no method of completely disinfecting the diseased organs. It follows from our investigations into the treatment of the local inflammation, that it is impossible to annihilate the

diphtheritic contagious material completely by mechanical removal of the deposits from the mouth and throat, or by destruction of them with caustics. Another way in which the objections inherent in these methods may be overcome is one which has long been a favourite in therapeutics; viz., to destroy, by industrious gargling and rinsing of the diseased cavities, the septic ferments and the substances which have entered upon decomposition and are acting as poisons. A glance at the history of diphtheria and its treatment shows that attempts of this kind have at no time been wanting. The most usual remedies for counteracting, as far as may be, the fungous growths and the progressive decomposition, and for limiting their entrance into the tissues and their absorption, are, first, spirits of wine and diluted chlorine-water, in the proportion of one to three; in the next place, solutions of carbolic acid or permanganate of potash, one or two grains to the ounce; besides these medicaments, solutions of hypochlorite of soda, forty grains to the ounce, and of hyposulphite of soda, twenty-two grains to the ounce, and the crude flowers of sulphur, are also esteemed for the same object.

The most suitable remedies, then, to meet the indication of opposing septic infection and general poisoning of the system successfully are, on the basis of experimental investigation, alcohol, freshly prepared and properly diluted chlorine-water (containing fifteen to thirty per cent. of chlorine-water), solutions of permanganate of potash, one and a half to two and a half grains to the ounce, and of carbolic acid, two and a half grains to the ounce, or where this cannot be borne, a like solution of oil of thyme in equal parts of spirits of wine and water. Since these substances, on account of their concentration, are not suited for inhalation, in which a certain portion is always liable to reach the lungs and occasion symptoms of irritation, they will most judiciously be used as gargles. With these the patient has to rinse his mouth once or twice at least every hour, or where this is not easily possible, as in the case of small children, we must seek to cleanse the mouth and throat by the use of the syringe.

But, rational and promising as this antiseptic and disinfecting method appears, still we must never lose sight of two points; viz., that by these means no limits are set to the inflammation and exudation on the mucous membranes; on the contrary, possibly even an increase of these may be induced; then, in the second place, that owing to the fact that these fluids only occasionally bathe the mouth and throat, a complete destruction of the masses of micrococcus cannot be effected, for they grow not only in the thick brawn-like deposits, but they may have already gained entrance into the tissues of the mucous membrane and into the serous canaliculi and lymphatic vessels. We cannot then procure a complete destruction of these parasites by any one of the gargles which have hitherto been available, unless we are willing at the same time to cauterise destructively both the healthy and the diseased mucous membrane, with all the results already detailed.

Empirical knowledge, gained by practice in the treatment of diphtheria with antiseptic gargles for years past, quite agrees with these results, and the various specific remedies of this kind have in no way stood the test of experience.

There is a possibility that the organism may

limit and even prevent septic disease and a general infection, through the capacity for reaction which belongs to the affected tissues. This is also the way in which nature herself affects a cure. I have repeatedly called attention to these facts, which I have observed during several years past; and Professor Eberth, in Zürich, has expressed a similar opinion in regard to the healing of diphtheritic wounds.

In the case of the mucous membrane deprived of its epithelium, and covered with fungous growths and inflammatory exudation, if a due reaction set in, and the cell-formation be active, as in a diphtheritic wound, the micrococci are washed away with the pus; or in case a thick layer of fungus has already been formed, this will be removed by a suppurative process of demarcation. Inversely, in case of slight reaction of the tissue, with rapid increase of the parasites, the suppuration which ultimately sets in will no longer suffice to check the further advance of the fungi and septic materials; that is, to prevent the local and general infection. Finally, certain individual differences in the capacity of reaction of the tissues are also severally liable to favour or retard these processes; and this very difference, to which we would call special attention, must also take a part in those cases in which the fungus cannot be regarded as the only cause of suppuration.

To set up a rapid and abundant suppuration will then form one of the first indications of our present task; and with this we should always combine the use of antiseptic gargles, to secure the utmost possible cleansing and disinfection of the cavities involved. By the energetic use of hot vapour this demand will be met agreeably to nature, at the same time that the separation of the pseudo-membranes is hastened by it; the micrococci are partly taken up by the rapidly forming pus-corpuscles, and partly washed away by them, and an impermeable layer is opposed to the septic masses, until finally the false membranous layer becomes completely detached from the rapidly regenerating tissue of the mucous membrane. According to the individual peculiarity in capacity of reaction, will this separation occur more or less rapidly; and it will depend upon the height the disease has already reached, whether the septic affection and general poisoning can be prevented, and how far this can be done.

The mode in which the hot vapour is to be employed to meet this indication will be the same as that which was found suitable in combating the local inflammation. The number and duration of the separate inhalations will be arranged in accordance with the intensity and extent of the local process, since the elimination of the fungi and septic materials follows at once upon the casting-off of the membranes. The longer the disease has already lasted, the greater the extent of the exudation and the more rapid its decomposition, so much the more energetically must the use of the vapour be pushed, the highest possible temperature being used, and the quarter-hour sittings following each other at intervals of half an hour. At the same time, the mouth and throat must be carefully gargled or syringed out every hour with diluted alcohol or solutions of carbolic acid and permanganate of potash, two and a half grains to the ounce.

Now, although the principles of the local treatment of diphtheria, as determined by pathological and physiological considerations, also generally serve

as our guide in the affections of adjacent organs, still certain modifications must enter into this treatment if the diphtheritic process have occasioned a pseudo-membranous exudation on the mucous membrane of the nasal cavity, the larynx, the trachea, and the bronchi.

BRAXTON HICKS ON RULES FOR THE ADMINISTRATION OF ERGOT.

Dr. J. Braxton Hicks, in a lecture published in *Guy's Hospital Gazette*, February 6, 1875, says, There is a rule which I may as well mention here, namely, *not to give secale if any obstacle to delivery is expected, unless we are prepared to render assistance when the pains have been roused*. I have seen the former portion of this rule enforced, but this is limiting our use of secale too much. Unless we have instruments, etc., close by, then the rule holds good. As an instance of the employment of this drug under these circumstances, I may mention a case. I was sent for in consultation to a patient who had been a long time in labour. The pains had subsided. Two doses of liquor secalis had been given, but without any result. The uterus was still motionless. It was not in a permanently contracted condition. I therefore repeated a third dose. I waited an hour without result. Thinking that perhaps the preparation was at fault I gave twenty grains of the powder, boiled in water, and drunk with the dregs. In a quarter of an hour the uterus was in full action. We had suspected some obstruction from noticing the size of the pelvis. I was therefore ready with the forceps. After waiting fairly and finding no advance, the forceps was applied and the child delivered, an active uterus making the remainder of delivery safe and natural. The same would occur in a very contracted pelvis; if the uterus should fail in its activity in this case, even if we perforate first (supposing we do not think it advisable to turn) we are much assisted, and no danger is run, if we arouse the uterus into action before we draw down the child. It is difficult to lay down rules as to when it is urgent, in cases of inactivity of the uterus, that we should stir it up to action. I remember, in my younger days, allowing the head of a premature foetus to rest on the perinaeum for twelve hours, at the end of which time there was one pain and the child was expelled. The administering of a dose of secale would at any time rouse 'pains'; still, as there was no pressure, and as no ill resulted, there was no necessity. The pulse remaining good, and no aberration from the normal state existing, we may elect to wait without serious harm; it may be more convenient to get the labour over, and we shall not be acting wrong in hastening matters. But when the pulse rises, feverishness begins, and the patient becomes anxious, fretful, and irritable, it is as well, the path for the exit of the child being clear, to give a dose of secale, especially if we have tried the perhaps milder though less certain measures at our hand for stirring up 'pains.' When the case is well selected, the full dose of secale, from half a drachm to one drachm, acts more satisfactorily than an expellent than small frequent doses. The latter tend to irritate the uterus and retain the child. If the uterus, however, be violently roused to expulsion, while the passages are unprepared or obstructed, then the uterus may injure and rupture itself, or may tear down the obstacle, rending the vagina or perinaeum, or damage the child by pressure; or crush its cranial

bones, or rupture the longitudinal sinus by too much overlapping.

I prefer to give ergot in the form of powder, twenty to thirty, or even forty grains boiled in water, and the whole taken; this may be repeated in twenty or thirty minutes. There are many preparations, which can be given if proved to be good, in the equivalent doses. The ethereal tincture keeps well and is efficient, but is nauseous and liable to cause vomiting. It is prompt, and may be useful in *post partum* hæmorrhage. Ergotine has been employed in about four-grain doses injected subcutaneously. It is said to be very efficient and rapid in action, but personally I have not sufficient experience of it at present to speak of it more. It will be a very great advantage if ergot can be made to act promptly. Given in the form of a powder it is slow, even when previously boiled. It is more efficient if we employ the liquor or tincture, still it is then very slow for such cases as *post partum* floodings. In ten minutes the crisis has often passed with one of two terminations; thus, although *secale* is good in the milder cases of flooding, it is practically useless in the sudden forms, unless its action come in afterwards, when our more active treatment has succeeded, to secure permanent contraction. It is a questionable point whether large doses of *secale* do not depress the heart's action, so much as to render its employment to be avoided in extreme cases of flooding. I am inclined to think that it has this effect; but this will not affect our employing it in cases without violent flooding. If in cases of flooding before labour we want to increase uterine action, we may generally employ it, unless the patient be nearly pulseless. It is always a great comfort to feel that when the child is born, the uterus will most probably be in an active state from the previous dose of ergot.

It has also been supposed that ergot is poisonous to the child. For myself, I have no proof of its poisonous properties, but I have often seen it kill the child. If you give it in ill-suited cases—I mean where the uterus, as in many primiparæ, is already irritated, where it has already half-asphyxiated the child, by pressing on the funis, placenta, and half closing the sinuses, then a dose of *secale* will go far to ensure its death; or if impaction be already present, and the suture overlapping, then the parts inside the cranium are pressed upon so hard as to extinguish life, or at least so to damage the brain as to make the child an intellectual wreck. Given in moderate doses, and in true inertia, I know no drug which is so certain of producing the desired effect.

MEDICINE.

BRUNTON ON COTTON-WOOL IN THE EARS AS A PROPHYLACTIC AND CURATIVE APPLICATION IN CORYZA AND SORE THROAT.—A correspondent informs us (*Practitioner*, February, 1875) that colds in the head or sore throat may frequently be prevented by placing cotton-wool in the ears when an attack is feared. Even when the attack has commenced, it may be cut short by the same simple application. If one side of the nose or throat only be affected, it is sufficient to place cotton-wool in the corresponding ear. In some cases it is unnecessary to do more than plug the orifice of the auditory meatus, but in others having delicate ears it is advisable to cover part of the concha as well. The beneficial effects of the application are

most marked in those who have a large meatus or a thin and delicate ear, and are less distinct when the meatus is small or the ear large and thick.

A little consideration will show that this proposal is by no means unlikely to be of practical use, and at the same time to throw some light on the causation of internal inflammations. Inflammation of any part of the body is sometimes produced by irritation in another part closely connected with the first by means of the nervous system. In the case of the ear it is easy to see how an irritant applied to it may lead to sore throat. Brücke mentions in his *Physiologie*, and anyone can readily verify his statement, that if a paper spill be pushed well into the auditory meatus, and moved about, a feeling of tickling will be felt in the throat, and if the irritation be continued coughing will ensue. The reason of this is, that the vagus nerve gives off one branch (the ramus auricularis) to the ear, and another branch (the superior laryngeal) to the larynx, as well as branches to the pharynx. When the ramus auricularis is irritated by the paper spill, the irritation is not rightly localised by the nerve-centres, but is felt as if it had been applied to the laryngeal and pharyngeal branches of the same nerve.* And, if irritation of the auricular nerve by a paper spill thus causes a sensation exactly resembling the effect of irritation applied to the part supplied by the laryngeal and pharyngeal nerves, it seems by no means improbable that a continuous irritation applied to it by a draught of cold air may actually cause inflammation in the pharynx, while its protection by cotton-wool in the meatus may prevent any such consequences, in somewhat the same way as a covering over a horse's loins greatly lessens the risk of nephritis. The renewed application of the same irritant which has produced the inflammation may, and probably does, tend to keep it up. The cotton-wool, by preventing this renewal, may exert a curative as well as a prophylactic action. The effects of cotton-wool on cold in the head are more marked than upon sore throat; but it is not quite so easy to show the nervous communication between the ear and the nose as between the ear and the pharynx.

It is not unfrequently observed that cold is more readily caught from a draught playing on the side or back of the head, than from one meeting us fairly in the face and blowing directly down our throat; and these observations on the nervous connections between the ear and the throat may help us to understand the cause of this, and suggest to us the propriety of delicate persons carefully protecting the sides of the head as well as of wearing a comforter.

It must be borne in mind that strumous children, who are liable to colds, often suffer from discharges from the ear; and care must be taken that cotton-wool is not recommended indiscriminately and applied carelessly, as it might lead to the discharges accumulating in the meatus and doing mischief.

Colds in the head and throat are so common and troublesome, and the remedy is so simple, that it well seems to deserve a trial. Our correspondent is specially subject to colds of an unusually severe and oppressive character, yet he has, by the use of cotton-wool, and by experience in the mode of employing

* The converse is also noticed occasionally, for a patient suffering from ulcerated sore throat has complained to me of a pain in the ear coming on whenever she spoke. There the irritation was evidently applied to the pharyngeal branches of the vagus and transferred to the auricular branch.—Ed. *Pract.*

it, been able to stave off during nearly seven years any heavy cold in the head. Sore throats in the same case are always much benefited by it, and bad colds on the chest, though not cured by it, are invariably much mitigated. It may be used as a valuable preventive when travelling in cold weather, or when exposed to draughts.

MOBÈCHE ON THE EYE IN GENERAL PARALYSIS. Dr. Mobèche (*Annales Medico-Psychologiques*, November, 1874), contributes an article on the condition of the eyes in general paralysis of the insane. The early writers, he says, in their accounts of this disorder, made no mention of the state of the eyes. M. Bailarger was the first who paid particular attention to it. Other observers are MM. Lasèque, Moreau de Tours, Marcè, Dagonet, Billod, and Ach. Foville. The chief point to be noted is the inequality of the pupils, which is sometimes very marked, sometimes very slight. It may depend on the dilatation of one pupil or on the contraction, though this is far less frequent. The contractility of the iris is often affected, and it does not readily contract or dilate. This does not depend on any adhesions, for it dilates readily under atropine. Not only is there inequality of the pupils, but in a considerable number of patients the opening of the iris has lost its circular shape, and assumed a variety of conformations. When it is contracted its contour is almost always irregular, angular, or elongated. Even the pupils which are normal in size are often altered in shape. Sometimes they are elliptical, sometimes they become quadrilateral or triangular, instead of circular, or they may be circular in half or two-thirds of the circumference, and polygonal in the rest. At the commencement of the malady the changes take place frequently; but the writer has never seen a dilated pupil return to its normal size while its fellow was in turn dilated. The alterations were always observed in the same pupil. He is of opinion that defective vision is common in general paralytics, but is not discovered unless accurate methods of testing it are employed. This weakening of sight is due to the dilatation, and not to any affection of the retina, for if it is overcome artificially the sight is as good as that of the other eye. As to the causes of this inequality authors differ. M. Billod thinks it due to a lesion of the oculo-motor nerve, on which the contraction of the iris depends. M. Voisin finds it in the great sympathetic, and its effect on the radiating fibres of the iris; when the sympathetic is excited the pupil dilates; when it is paralysed, it contracts. Dr. Mobèche thinks it may be due sometimes to the one cause, sometimes to the other, or that the retina may become insensible and dilatation take place without lesion either of the oculo-motor or of the sympathetic. Such defects as amblyopia and amaurosis are not, he thinks, common in general paralysis, but may be found if carefully looked for, and are often overlooked because they are confined to one eye; neither is the amaurosis complete, but a certain degree of sight remains. Both the latter, and also paralysis of the third nerve, have been found before general paralysis had appeared.

G. FIELDING BLANDFORD.

MATHEWS ON ANEURISM OF THE ABDOMINAL AORTA SUCCESSFULLY TREATED BY IODIDE OF POTASSIUM.—Dr. T. M. Mathews, of Mount Enterprise, Texas, reports in the *American Journal of the Medical Sciences*, January, 1875, that during the past

winter he was called to attend Mrs. W., aged thirty-eight years. She had been married twelve or fifteen years, but had never had any children. He failed at the time to detect any cause for her general ill health; but in April last he discovered a large aneurism of the abdominal aorta, extending from under the sternum obliquely downward to below the umbilicus. Having seen quoted on page 539 of the *American Journal of the Medical Sciences* for April, 1874, an article by Dr. George W. Balfour on large doses of the iodide of potassium in such cases, he determined to give the drug a trial. He at once put the lady upon twelve and a half grains dissolved in the syrup of sarsaparilla three times a day, and increased the dose each day till it reached fifteen grains. He then gave fifteen grains four times in the twenty-four hours. The patient began at once to improve; the large doses seemed at first to irritate the stomach a little, but this soon passed away. When he began the use of the remedy, the lady was confined closely to her bed; she could not sleep unless under the influence of chloral. After five months, she was able to be up nearly all the while; slept without the soporific; rode about, even on horseback, a good deal, and was apparently in very good health. The aneurismal thrill and the bruit, once very distinct, were nearly absent, though the remains of the 'sac' could be distinctly felt, yet very much smaller than it was at first. He used nothing but the iodide of potassium, except during June, when he gave alternately with the iodide doses of a drachm of fluid extract of ergot, and five minims of tincture of digitalis. He had kept up the use of the iodide steadily, except for two weeks. At the time of reporting, he was giving iodide of potassium, gr. v, and carbonate of ammonia, gr. iii, three times a day.

HALL ON EMETICS IN THE COLD STAGE OF AGUE.—Surgeon A. R. Hall, of the Army Medical Department, writes (*Practitioner*, February, 1875): 'A very successful mode of treating the cold stage of ague, and one extensively employed by medical men in India, is to give an emetic at the commencement of the stage when shivering first begins. The emetic I myself employ is sulphate of zinc, as it does not leave so much depression afterwards as ipecacuanha, and half a drachm of sulphate of zinc is usually found sufficient, followed by copious draughts of hot water, say three or four pints, if the patient can be induced to swallow them. This generally induces free vomiting, and the shivering fit is as a rule cut short at once, and the hot stage, with its subsequent perspiration, quickly follows. The mode of action I conceive to be that the emetic induces a state of relaxation of the muscular fibres of the vessels, and thus promotes free circulation through the surface extremities, lungs, and system generally. I believe that in the cold stage of ague we have a condition similar to the collapse of cholera, though in a much milder form. It has been frequently noticed by medical men in India that the cold stage of remittent fevers can hardly be distinguished from the collapse of cholera, and I have myself felt the breath of a person suffering from remittent fever nearly as cold as in a case of a cholera patient.'

RECENT PAPERS.

Case of Cerebro-Spinal Meningitis. By Dr. Dowse. (*Medical Times and Gazette*, January 16, 1875.)

A remarkable Case of Fasting. By Dr. Whitney. (*Peninsular Journal of Medicine*, January, 1875.)

- Remarks on a Point in the Treatment of Diffused Phlegmonous Periostitis. By M. Giraudeau. (*Bulletin de l'Académie de Médecine*, January 12, 1875.)
- Diseases of the Larynx. By M. Isambert. (*Le Progrès Médical*, January 16.)
- Destruction of One Lung in Inflammatory Phthisis. By Dr. Alonzo Clark. (*New York Medical Record*, January 2.)
- On Consecutive Insanity. (*Gazette des Hôpitaux*, January 16.)
- Premature Removal of the Drainage-Tube in Two Cases of Suppurating Pleurisy, followed by Cure. By M. Jules Simon. (*Gazette des Hôpitaux*, January 14.)
- Diagnosis of the Dyspnoeal Form of Diseases of the Heart. By Dr. Sée. (*France Médicale*, January 13.)
- Membranous Enteritis. By Dr. Findley. (*American Journal of the Medical Sciences*, January.)
- Cases of Splenic Leukæmia, with their Treatment. By Dr. Da Costa. (*American Journal of the Medical Sciences*, January.)
- On Meningitis in Erysipelas of the Face. By M. G. Hayem. (*France Médicale*, February 6.)

SURGERY.

GÜNTNER ON THE GRAVITY OF COMPOUND FRACTURES OF THE FEMUR.—Professor Güntner, of Salzburg (Betz's *Memorabilien*, Heft 10, 1874), discusses the probable causes of the dangerous character of compound fracture of the femur, especially of fracture due to gun-shot injuries. Attention is directed in the first place to the conditions and results of a clean and intentional wound of the thigh as in amputation, and to the very great fatality of this operation as compared with that of removal of any other limb. This difference is believed to be due to the quantity of muscular tissue which surrounds the femur, the arrangement and size of the femoral muscles, and the influence exerted by them on the stump. On the surface of a transverse section of a healthy thigh is presented a complex system of membranous tubes and sacs surrounding and enveloping the bellies of muscles, vessels, and nerves. Each of these sacs may become the starting-point of inflammation, set up by the frequent contraction of the muscles arising from the pelvic bones and from the femur. A frequent result of this muscular contraction is the so-called conicity of the stump, which, through causing exposure of the extremity of the bone and the medulla, constitutes an element of danger. If speedy and healthy occlusion of these sacs and of the medullary canal be prevented through secondary hæmorrhage, or if the exudation do not possess the proper degree of plasticity, on account of the unhealthy condition of the patient, there is great risk of purulent infiltration and infection. Although in the fore-arm, as in the thigh, there is an extensive muscular apparatus, and a complex set of membranous sacs and of sheaths, still amputation in the former limb is usually successful. This Dr. Güntner attributes to the facts that the muscles of the fore-arm arise from the arm or upper portion of the fore-arm, are not so powerful as those of the thigh, and soon terminate in long tendinous cords. In the relatively thin forearm the results of inflammatory action are soon revealed, and exit may at once be given to pus. In a thigh-stump, on the contrary, widely spread inflammatory action and extensive purulent deposition may take place without the manifestation of any external sign, until it is too late to interfere with any prospect of success. The danger of these secondary processes is in-

creased by the existence in the thigh of a large network of lymph-vessels, always ready to take up deleterious matter and to carry it into the system. In addition to the above-mentioned sources of danger, there are others not less important; the extremity of the bone through muscular action and retraction of the soft parts may, together with its medulla, be exposed to external influence, and so become affected with more or less extensive necrosis attended by profuse suppuration, or with osteomyelitis and osteophlebitis, which frequently give rise to pyæmia. In discussing the means by which some of these conditions of danger might be prevented, Dr. Güntner states that amputation by flaps should be preferred to the circular method, as by the former the speedy occlusion of the sheaths and membranous sacs about the muscles is better favoured, and the bone and vessels are more effectually protected from external influences. In case of obstinate hæmorrhage from a large vein, the application of a fine ligature is to be preferred to pressure by a plug of charpie or any other foreign body. All bleeding, he insists, should be arrested before the flaps are brought together. Muscular contraction may be prevented by firm bandaging of the stump from the pelvis downwards, or, if this fail, by the administration of opiates. Great as are the risks which attend a carefully performed amputation of the thigh, it may be readily conceived that still greater danger is associated with an accidental compound fracture in this region, if we bear in mind the main probable results of such an injury. The soft parts are much contused, and often crushed; the skin and subjacent structures are divided by one or more wounds, which are always irregular and may be of considerable extent; nerves and vessels are lacerated, and there is more or less extravasation of blood. The general grave complications of such a lesion are loss of blood and concussion of the nervous system, indicated by stupor or commotion. As a cause of early death after compound fracture of the femur, Dr. Güntner mentions a form of septicæmia to which he thinks too little attention has been hitherto devoted, viz., septicæmia through diffusion of gases. This is to be met with in cases only where there has been rapid decomposition of organic tissues after much crushing of soft parts or from extensive infiltration of gangrenous excretions. This presents the typical form of septicæmia, since all other forms are more or less complicated by pyæmia. Dr. Güntner is inclined to regard it as a probable but not frequent cause of speedy death in puerperal affections, endometritis, and metrophlebitis.

FUCHS ON A CASE OF LIGATURED PENIS.—This case is reported in the *Medicinisch-Chirurgisches Centralblatt*, no. iii. 1875. In November of last year Herr Julius Fuchs was called one afternoon to a healthy and robust boy aged six years and a half, who for some time previously had been in the habit of passing his urine in bed, for which he was often rebuked, but never actually punished. The following conditions were presented: extreme phimosis, the penis swollen to about three times its natural size, the prepuce much swollen and marked on each side by patches of sloughing caused by the friction of the penis against the inner surfaces of the thighs during walking. About one inch in front of the root of the penis was an annular granulating wound around the whole organ, involving the skin, subjacent cellular tissue, and much of the thickness of

the corpora cavernosa, extending almost as far as the urethra. The edges of this wound were between six and eight lines apart. The surface of the scrotum was red and eczematous, and the inner surfaces of the thighs studded with pustules. The urine was passed in drops, and with much pain. No accurate information as to the cause of this condition could be obtained from the boy, who, when questioned, made contradictory and improbable statements.

On the following morning, Herr Fuchs, on carefully examining the wound, observed among the granulations a dark line, which proved to be a portion of a thread which the patient had bound tightly round the penis, evidently with the purpose of preventing a nocturnal and involuntary flow of urine. This thread was at once divided and removed. With perfect rest, and the use of camphor lotion and cold applications, the case progressed favourably. The preputial sloughs were thrown off on the third day; the eruptions on the scrotum and the inner surfaces of the thighs soon disappeared, and the urine passed freely without causing pain. At the end of the year the penis, with the exception of the prepuce, which remained hard and swollen, had regained a healthy condition.

W. JOHNSON SMITH.

BUROW ON THE PREVENTION OF THE PASSAGE OF BLOOD INTO THE LARYNX, IN OPERATIONS ON THE JAWS, ETC.—Dr. Burow of Königsberg (*Berliner Klinische Wochenschrift*, Feb. 1875) publishes two cases of operations on the jaw, in which he employed Rose's method of placing the head so as to prevent the blood passing into the trachea or pharynx. There are two grave objections to Trendelenberg's method of producing anæsthesia in such cases, which have been frequently observed, viz., the uncertainty and insufficient strength of the tube of the apparatus, and the difficulty of fixing it for the tracheotomy, which is the preparatory step; again the elastic collar often bursts at the moment of expiration, so that it is necessary to delay the proceedings; moreover the best caoutchouc will lose its elasticity; circumstances which would place the country practitioner in difficulties. Tracheotomy is itself an important operation, and is, of course, liable to its own mishaps, which renders its being an adjunct to others still more undesirable.

Rose proceeds as follows. The patient is to be placed with his head in such a position that all danger which may occur from blood being in the mouth during deep anæsthesia may be prevented. He should be anæsthetised lying on his back if possible; then the cushion under the back being removed, so much of his body should be drawn over the edge of the operating table that his head should hang down, with the crown vertical, in which position it should be fixed by a trustworthy assistant kneeling at the side. The operator sits (or stands) in front of the patient, consequently he has to invert all his incisions (*i.e.*, make them from chin to vertex) and the blood thus flows out partly through the mouth, but the greater part of it by the choanæ and nose.

The operations for which Rose has generally employed or has proposed this proceeding, are resection of the upper jaw, uranoplastics, rhinoplastics, laryngotomy, tonsillotomy in children, and hare-lip cases, the latter without an anæsthetic, so as to prevent the swallowing of blood and the resulting disturbance of the digestion, which often cause

death. Tonsillotomy is, as a rule, performed without an anæsthetic in children, but it is sometimes necessary, or even desirable. Hueter, in one case, performed tracheotomy, and inserted Trendelenberg's tampon-cannula.

[In a case observed by the reporter some years ago, the method here described would have been invaluable; a patient was being operated upon for strabismus, and under anæsthesia, when suddenly he became livid and presented all the symptoms of threatened suffocation, it was discovered that the blood had found its way into the back of the pharynx, though a small aperture immediately below the lower eyelid, resulting from syphilitic necrosis of the superior maxilla, and which had also destroyed the floor of the antrum.—*Rep.*]

EDWARD BELLAMY.

MARSHALL ON A NEW OPERATION FOR VARICOSE VEINS.—Mr. John Marshall recently gave a lecture at University College Hospital (*Lancet and British Medical Journal*, January 23) on the treatment of varicose veins; in the course of which he remarked that the treatment by subcutaneous ligature, now generally employed, was not altogether free from risk, and that its results were not always satisfactory. He then proceeded to describe an operation which, he believes, will prove a more speedy, effectual, and safer cure than that now in use. It consists in excising a considerable length of the vein where it is most enlarged, and is performed as follows. The course of the vein having been marked with ink, a pin is passed under it at each end of the part to be removed; the limb is now emptied of blood by Esmarch's bandage; the skin is divided along the marked line, and the vein, previously secured by figure-of-8 ligatures passed over the pins, cut across at each end and dissected out; the wound is then dressed after Lister's method. Mr. Marshall afterwards showed what had been a very bad case; ten inches of vein had been removed, and a rapid and complete cure effected.

FIRMAN ON PHYTOLACCA DECANDRA IN THE TREATMENT OF MAMMARY INFLAMMATION.—Dr. Firman, of Ohio, calls attention, in the *Philadelphia Medical and Surgical Reporter* of January 9, to the special virtues of *phytolacca decandra*, or poke plant, in cases of inflammation of the mammary gland. The plant is common in southern Europe, and also grows wild in the United States, where it has long been known as a popular remedy for 'garget'—an inflammation in the udders of cows. Dr. Firman says it is equally effectual in the human subject. He gives internally a fluid extract made from the root, and applies a more concentrated solid extract locally; under this treatment, cases of threatened abscess of the breast rapidly resolve. Several equally favourable reports on the antiphlogistic or sedative properties of this plant have appeared in the American medical papers during the last year or two, *e.g.* one by Dr. Biggers, in the *American Journal of the Medical Sciences* for January, 1873. J. W. LANGMORE, M.D.

RECENT PAPERS.

On Force-Pressure. By Dr. Verneuil. (*Gazette des Hôpitaux*, January 9.)
On Ulcers of the Legs kept up by an Affection of the Heart. By M. C. Marciano. (*Le Progrès Médical*, January 10.)

- Some Contributions to the History of Penetrating Wounds of the Knee-Joint. By Dr. Gayet. (*Lyon Médical*, January 17.)
- Esmarch's Bloodless Method. By Dr. Sands. (*New York Medical Journal*, January, 1875.)
- Free Incisions with Drainage-Tube. By Dr. Wackerhagen. (*New York Medical Journal*, January, 1875.)
- Dislocation of the Right Humerus downwards into the Axilla, of more than eight weeks' standing, reduced in four minutes, by the Method of Mr. C. White, of Manchester (1764.) By Mr. R. Perssé White. (*Irish Hospital Gazette*, January 15.)
- On Tracheotomy. By M. Saint-Germain. (*Le Mouvement Médical*, January 16.)
- Contribution to the History of Congenital Syndactylism. By Dr. Devilliers. (*Bulletin Général de Thérapeutique*, January 15, 1875.)
- Case of Rapid Gangrene. By Dr. Richelot. (*L'Union Médicale*, February 6.)
- Femoral Aneurism treated by Compression and Ligation. By Dr. Gay. (*American Journal of the Medical Sciences*, January, 1875.)
- Fibrous Polypi of the Matrix, Intra-Uterine Myoma. By M. Stolz. (*Revue Médicale de l'Est*, February 1.)
- On Sarcomatous Tumours of the Soft Parts of the Dorsolumbar Region. By Dr. Gross. (*Revue Médicale de l'Est*, February 1.)

MATERIA MEDICA AND THERAPEUTICS.

TREATMENT OF COLD.—The editor of the *Archives of Electrology and Neurology*, in the number for March, 1874, says: We have long been in the habit of using what we call a 'cold-powder,' which we have found of great value in breaking up colds when taken in time, and in modifying their force when taken late. The prescription is as follows. Dissolve five parts of camphor in ether to the consistence of cream: then add carbonate of ammonia, four parts; opium-powder, one part. Mix and keep in a tightly corked bottle. The dose is regulated by the opium, and ranges between three and ten or fifteen grains. We have been accustomed to prescribe it for our friends by the finger-nail full, or as much as one can put on the finger-nail. This powder may be taken in a little water just before retiring, by preference, or at any hour of the day, whenever there is a suspicion of having caught cold. If need be, a moderate dose may be taken several days in succession.

The advantages of this powder are very great. 1. The taste is agreeable, or at least it is not disagreeable. Even the bitterness of the opium is mostly neutralised by the camphor and ammonia. No child objects to this powder. 2. It is singularly and inexplicably efficacious. We believe it to be more efficient than Dover's powder, and incomparably more agreeable. In some cases it produces a gentle perspiration; in others, this especial effect is not observed. It is so easy to take, and so harmless in small doses, that it is well and safe to take it whenever we become badly chilled. We first called attention to this cold powder in 1869. From various sources, lay and medical, we hear that it accomplishes all that is here asserted, and we therefore earnestly recommend it to the profession.

DE MUSSY ON INJECTIONS OF IPECACUANHA.—Dr. De Mussy writes to the *Practitioner* that in chronic dysentery, and even in common chronic diarrhoea, injections of decoction of ipecacuanha into the intestines are a common practice in Peru and in some

other countries of South America. He has used this remedy with success in some cases of diarrhoea unchecked by other means. His formula is this: boil one drachm of ipecacuanha-root for ten minutes in five ounces of water; let it infuse for one or two hours, strain off, and make use of the decoction as an enema. Habitually, this enema is wonderfully well tolerated. No painful sensation nor irritation of the bowel attend these injections in the greater number of cases. They can be retained for several hours without any difficulty, and even occasionally with a feeling of comfort and relief.

DOWSE ON THE TREATMENT OF ACUTE RHEUMATISM.—During the last three years Dr. Dowse (*British Medical Journal*, January 9 and 23) has treated cases of acute rheumatism very successfully by packing the patient in blankets wrung out in hot water. This causes first, elevation of temperature, and then copious sweating, which is soon followed by diminished pyrexia and great alleviation, or even cessation, of pain in the joints. Three applications are usually sufficient. He gives full directions and some important cautions.

RECENT PAPERS.

- On the Researches of Currie; and recent Views relating to the Remedial Use of Water. By Dr. Austin Flint. (*The American Practitioner*.)
- On Sulphide of Carbon, in the external Treatment of Chronic Ulcers. By Dr. Evariste Michel. (*Journal de Thérapeutique*, January 25.)
- On the Influence of the Climate of the Andes from 11° to 13° lat. S. on Phthisis. By Dr. Evaristo d'Ornellas. (*Journal de Thérapeutique*, January 25.)
- On the Treatment of Dysentery with Creasote. By Dr. Cushing. (*Chicago Medical Journal*, January, 1875.)
- The Chemistry of Therapeutics. By Dr. McKendrick. (*British Medical Journal*, January 30.)
- New Researches in Iodine. By Dr. Welander. (*Nordiskt Mediciniskt Arkiv*, Band vii. part 4.)
- Copaiba as a Diuretic. By Dr. Dixon. (*Practitioner*, February, 1875.)
- On the Treatment of Rheumatism and Gout with Trimethylamine. By Dr. W. H. Spencer. (*Practitioner*, February, 1875.)
- Quinia as a Parturient. By Dr. Washington. (*Nashville Journal of Medicine and Surgery*, January, 1875.)
- Employment of the Cyanides in Acute Articular Rheumatism. By Dr. Luton. (*Bulletin Général de Thérapeutique*, January 15.)
- Alcohol as a Medicine. By W. Berry. (*British Medical Journal*, January 16.)
- Case of Poisoning by Carbolic Acid. By F. W. Warren. (*Irish Hospital Gazette*, January 15, 1875.)
- Is Iodine an Antivirulent Agent? By M. H. M. Colin. (*Bulletin de l'Académie des Sciences*, January 12, 1875.)
- Typhoid Fever and the Eucalyptus Globulus. (*Le Mouvement Médical*, January 16, 1875.)
- On the Combined Administration, chiefly Hypodermically, of Chloral, Morphia, and Atropia. By Dr. Bartholow. (*Clinic*, January 2, 1875.)

OBSTETRICS AND GYNÆCOLOGY.

BARKER ON THE AGE OF WOMEN WHEN THE CAPACITY FOR CHILDBEARING CEASES.—Dr. Fordyce Barker read a paper on this subject before the New York Medical Library and Journal Association, on November 20, 1874. The object of this paper was to show that, physiologically and as a matter of experience, there are limits in the reproductive functions of women. The ordinarily accepted notion that menstruation and conception are inti-

mately connected is not borne out by facts, as many women who menstruate regularly without any apparent pathological cause are sterile; besides, many women have conceived and borne children in whom the catamenia have entirely ceased for some years, and who, in fact, have never menstruated at all. There are cases on record where females have had irregular and scanty periods previous to marriage, which entirely ceased when they married, and yet have had children. Dr. Barker met with an instance of the kind where the person had ten children, and also with cases in which children were born two, three, and five years after the cessation of menstruation. He therefore concludes that ovulation and menstruation, although often coincident, do not stand to each other as cause and effect. Ovulation does not always occur at the time of menstruation; the latter may therefore be viewed as an accident and incidental phenomenon, a mere flux of blood from the interior of the uterus at stated periods, irrespective of ovulation. Ovulation is essential to impregnation, menstruation is not. The presence of the catamenia in a female over fifty-five or fifty-eight years is no proof of ovulation. With senile atrophy of the ovaries, ovulation and conception cease. This period is reached, as a rule, between the fortieth and fiftieth year; but, in very exceptional case, this change does not occur until one, two, three, or four years later. This has been proved by *post mortem* examinations; and, in addition, there is but one properly authenticated case of childbearing at the age of fifty-five years, reported by Dr. Davies, of Hertford, England. There are, however, many known and reliable instances of women giving birth to children between the ages of fifty and fifty-four; Dr. Barker personally attended three women who were above fifty, one being fifty-three years of age. Several cases which have been accepted by writers of medical jurisprudence, where delivery had taken place beyond the age of fifty-five, were discarded as not supported by such evidence as would be regarded as conclusive in a court of law; for, where statements were made opposed to the universal experience of mankind, and the probabilities stood as a million to one, scientific men could accept no lower standard. His final conclusion was, that, from the experience of mankind, the laws of physiology, and the decisions of the courts of law, no medical witness was justified in declaring a woman capable of childbearing after the age of fifty-five years old.

In the discussion that took place afterwards, Dr. Pallen stated that he would be loth to say that a woman who menstruated regularly, and in whom there were no indications of the retrograde metamorphosis of age, was incapacitated from childbearing although beyond the age of fifty-five. There were also cases in which women menstruated regularly and bore children, and yet had extensive disease or degeneration of the ovaries.

Dr. Munde believed that menstruation and ovulation went together, and when one ceased, the other did also. He related many cases to prove this; at the same time allowed the exceptions which went to prove the rule, that conception ceased with menstruation.

Dr. Caro stated that, in Sicily, the government recognised the possibility of childbearing from the age of eleven years and two months to the age of fifty-four or fifty-five years. He knew of one case, where a woman had thirty-one children; the last was born when fifty-four years old. A double uterus was sus-

pected, as she gave birth to a child every six months. Unfortunately no necropsy was made on the death of the mother.

In answer to the question, what evidence Dr. Barker had that menstruation and ovulation did not necessarily occur together, he replied: (1) Because the one might exist without the other, as proved by authenticated cases; (2) Cicatrices were found in ovaries, indicating rupture of the Graafian vesicles many years previous to menstruation, and also fresh cicatrices had been found in old women who had ceased menstruating for a long time; (3) There were eight well certified cases in which menstruation continued after the extirpation of both ovaries; therefore ovulation was impossible. To him these facts were conclusive evidence of the independence of the two functions.

MARTIN AND OTHERS ON ENUCLEATION OF FIBROIDS.—At the Congress of German Naturalists and Medical Men, held in 1874 at Breslau, in the gynaecological section (*Berliner Klinische Wochenschrift*, Nov. 23, 1874), Dr. A. Martin read a paper on enucleation of intraparietal fibroids. He had enucleated five intraparietal myomata of the body of the uterus in the Gynaecological Klinik at Berlin. He entered very fully into the minute details of his own personal experience. Having described the anatomical relations of these five apparently particularly interesting tumours, he endeavoured to determine the precise period when the operation should be performed. He found it laid down that the tumours should be allowed to grow until they became submucous, and until the lower segment of the uterus was prepared by increasing contractile activity for their expulsion. Dr. Martin agreed in this view. It was under these conditions that he operated, by which means, he always considered, difficulties were diminished and the dangers lessened. All the usual enucleating instruments were discarded, and the shelling out the tumours performed with only a few incisions. To overcome some of the difficulties he invented a kind of forceps, with the upper portion of the blades armed with guarded and applicable hooks. Authorities he found varied much as to whether the operation should be completed in one sitting or in two. The relator thought the operation *à deux temps* only justifiable when the tumour was very rich in fibres and poor in blood-vessels. His after-treatment was directed purely to symptoms. Of the five patients four recovered in a short space of time; one died on the third day after an operation *à deux temps*. Out of the fifty-one recently published cases there was only a mortality of 14 per cent., whereas out of those collected by Dr. West, and performed a few years ago, the mortality stood at 50 per cent.

In the discussion that ensued, the proposal to operate on intraparietal fibroids met with much opposition. Dr. Fränkel, of Breslau, cautioned against operating for veritable intraparietal fibroids, as a method fraught with too much danger. Enucleation was only applicable in the submucous variety, to which he believed Dr. Martin's cases were referable.

Dr. Neugebauer, of Warsaw, and Dr. Spiegelberg, coincided in this opinion. The latter maintained that it was only those fibroids that were met with during labour, and in which the internal os was dilated, that were amenable to intrauterine operation; whereas true intramucosal fibroids, *i.e.*, those surrounded on all sides by a nearly equal layer of

uterine tissue, could not be extirpated *per vaginam*, or only when they were of small size, and situated low down.

PAULI ON DRAINAGE IN OVARIOTOMY.—At the last meeting of the Association of German Naturalists and Physicians, Dr. Pauli, of Posen (*ibid.*), spoke on ovariectomy with drainage; and from the result of two witnessed cases he recommended Sims's suggestion of prophylactic drainage with large adhesions, keeping the abdominal cavity open for some time, continuous cleansing with sponges, and also with depression of the pedicle. Drs. Martin, Ebell, and Spiegelberg agreed with Dr. Pauli, and as the result of their experiences strongly advocated this method. The latter (Dr. Spiegelberg) in his last case of ovariectomy, in which the pedicle became repeatedly untied and sank down, he gave up the trial with the drainage. The patient, it is true, recovered, but from the bursting of an abscess into the peritoneal cavity got diffuse peritonitis and made a difficult recovery. In a case where the cyst ruptured into the peritoneum during the operation, with Sims's drainage, the patient became rapidly well, with hardly any reaction.

W. C. GRIGG, M.D.

BROWN ON THE USE OF ERGOT AND BORAX.—Dr. C. Brown (*Transactions of the Medical Society of the State of Pennsylvania*) says: In those cases where the os uteri is dilated or dilatable, and the uterine pains are tardy, I generally give a full dose of powdered ergot, combined in equal proportions with borax. I find that this preparation of borax and ergot is better borne, and is more durable in its action than ergot alone. It not only stimulates the uterus to action, but it continues its effects longer. Generally, I have found that after giving one or more doses of this preparation before delivery, my patients are less liable to severe hæmorrhage. In uterine hæmorrhage, I have found nothing to excel ergot as a styptic. It seems to have a specific effect in this class of hæmorrhages.

RECENT PAPERS.

Tubo-Uterine or Interstitial Pregnancy. By Dr. Fitz. (*American Journal of Medical Sciences*, January, 1875.)

Pruritus Formicans accompanying Pregnancy and resulting in Abortion. (*American Journal of Medical Sciences*, January, 1875.)

On the Application of the Practice of Ovariectomy to Puerperal Peritonitis. By Dr. Netter. (*Revue Médicale de l'Est*, February 1.)

Treatment of Epithelioma of the Neck of the Uterus by Cauterisation with Chromic Acid. By M. Verneuil. (*France Médicale*, January 2.)

Observations on some Diseases of Women. By Dr. Savage. (*Birmingham Medical Review*, January, 1875.)

Retroversion of the Gravid Uterus. By Dr. Bernutz. (*Archives de Tocologie*, January, 1875.)

Puerperal Diseases. By Dr. Michel Péter. (Pregnancy and Serumurea.) (*La France Médicale*, January 6, 1875.)

Disorders of Nutrition and Displacements of the Womb, and their Treatment by Faradisation. By Dr. A. Tripier. (*Archives of Electricity and Neurology*, November, 1874.)

On the Compression of the Aorta in Severe Hæmorrhages after Delivery. By Dr. Léon Gros. (*Bulletin Général de Thérapeutique*, January 15.)

Chronic Inversion of Uterus reduced by Incision of the Cervix after Four Years' Duration. By Mr. G. Kemp, New Zealand. (*Obstetrical Journal*, January.) [The patient had become excessively anæmic from frequent floodings; these ceased after the reduction of the inversion, and she quickly recovered her health and strength.]

Retroversion of the Gravid Uterus. By Mr. W. Brown. (*British Medical Journal*, January 23.)

Midwifery Notes from British Kaffraria. By Mr. C. J. Egan. (*Medical Times and Gazette*, January 9.)

On the Inversion of the Uterus, and the Extirpation of that Organ by Means of the Caustic Ligature. By Dr. Valette. (*Le Mouvement Médical*, January 30.)

On Compression of the Aorta in serious Hæmorrhage after Delivery. By Dr. Léon Gros. (*Bulletin Général de Thérapeutique*, January 30.)

Puerperal Fever in the Philadelphia Hospital. By Dr. Parry. (*American Journal of the Medical Sciences*, January, 1875.)

The Valvular Specula, and some of the Evils attending their Use. By Dr. Leonard. (*Peninsular Journal of Medicine*, January, 1875.)

TOXICOLOGY.

PAYNE ON POISONING FROM CORROSIVE SUB-LIMATE GENERATED IN THE MOUTH, FROM AMALGAM PLUGS IN THE TEETH.—According to Dr. J. Payne (*Chicago Med. Journal*, August, 1874), 'Neither Asiatic cholera, nor small-pox, nor any malarious disease, is doing half the mischief in the world that is being done by this poisoning. Every medical man has undoubtedly had numerous cases of it, but never knew what it was.' From Dr. Payne's observations the patient is liable to be treated for 'dyspepsia, neuralgia, paralysis, consumption, and numerous throat-diseases.' No medicine gives any relief, and yet the patient does not die; 'he will again rally and again be prostrated.' There is such a 'resemblance in the symptoms to nearly all the diseases to which flesh is heir, that the physician is led to treat for some disease which seems to be a very clear case, but his patient gets worse.' In more than twenty cases that Dr. Payne had, nearly all had been pronounced by some physician as having consumption.

Dr. Payne 'has not time to detail the manner in which the corrosive sublimate is formed in the mouth,' further than to say that the mercury driven off from the plugs by the heat of the mouth combines with the chlorine in the fluids of the mouth or saline substances in food, then passes into the stomach, and produces slow poisoning.

Dr. Payne evidently feels strongly the importance of his case, and declares that 'there are some twelve thousand dentists in the United States doing a wholesale business in this poisoning,' and he asks the co-operation of the State Medical Society to assist in getting an Act of Congress passed, making it a 'penitentiary offence to place any poisonous substance in teeth that will injure people.'

[Patients may choose their symptoms from anything ranging between paralysis and consumption; they may either slowly become 'a total wreck,' or they may suddenly appear about to die, then rally, and yet again become prostrated.]

From the reporter's knowledge of the action of properly applied amalgam-plugs in the teeth, he is led to the conclusion that the experience of Dr. Payne is unique. The article will, however, doubtless, receive the attention that it deserves.—*Rep.*

OAKLEY COLES.

WARREN ON POISONING BY CARBOLIC ACID.—Mr. F. Warren, Resident Surgeon at Stevens' Hospital, Dublin, relates (*Irish Hospital Gazette*, January 1) the case of a man who drank some solu-

tion of carbolic acid intended for disinfecting purposes, mistaking it for whiskey. Its action was most rapid; he immediately became insensible, falling down suddenly as if in a fit; on his recovery he said that he remembered nothing whatever after tasting the liquid. When brought to the hospital he was suffering also from extreme syncope. The stomach-pump was used, stimulant enemata administered, and after about seven hours he recovered his consciousness and gradually rallied from the depression. An attack of acute gastritis followed. The urine passed the day after the accident was almost black, but was free from turbidity, and no trace of carbolic acid, blood, or albumen could be detected in it.

J. W. LANGMORE, M.D.

MEDICAL CHEMISTRY.

FOWLER ON A MODIFICATION OF TROMMER'S TEST FOR SUGAR.—Dr. George B. Fowler made some interesting remarks before the North-Western Medical and Surgical Society of New York (*New York Med. Journ.*, June, 1874), relating to the various tests of urine, and particularly with reference to a modification of Trommer's test for sugar. In order to use this test, take one ounce of water and add to it one drop of honey; apply Trommer's test to a portion in a test-tube, and the chemical reaction will take place. Take one ounce of urine and add to it one drop or as much honey as you please; apply Trommer's test, and a transparent molasses-colour will result. Take the precipitated red oxide of copper which resulted in the watery solution in the first case and add boiling urine; the red precipitate will immediately disappear. The urine, therefore, possesses the property of dissolving the red oxide of copper, upon the appearance of which Trommer's test depends. But a certain quantity of urine can only dissolve a certain amount of the copper. So, if we add an excess of copper, this excess will be precipitated by the sugar, and the usual reaction will show itself. But when three or four drachms of urine are used, as is always the case, the quantity of potash-solution which will have to be added in order to produce a clear blue colour, will overrun an ordinary-sized test-tube. Therefore, take from five to ten drops of the suspected urine and two or three drops of the solution of sulphate of copper a drachm to an ounce. Then pour in the alkali until a transparent blue colour appears. Now boil, and the reaction will be perfectly distinct and satisfactory.

DERMATOLOGY.

TILBURY FOX ON ITCH.—In a lecture reported in the *British Medical Journal* for January 23, Dr. Tilbury Fox remarks on the different aspect which scabies presents in hospital and in private practice. Well-to-do patients apply earlier for advice, when the acari are as yet few in number and confined to limited areas; the furrows also are not rendered visible by dirt; it is necessary to look at the skin obliquely in order to detect them. The secondary eruptions, which are a prominent feature in hospital cases, are often scarcely present in private patients. The consequence is that the disease, when first seen, is frequently not detected. Dr. Fox suspects scabies if a patient come complaining of

nocturnal pruritus affecting the lower part of the abdomen, the inner part of the thighs, and the forearm or hands. He states also that such cases, when they are diagnosed, are often treated too energetically, so that more irritation is caused by the remedies than by the original disease. He orders a dilute sulphur ointment (half-a-drachm of sulphur to an ounce of lard) to be rubbed into the parts most affected, e.g., the hands and penis, for three nights and mornings, and just smeared over adjoining parts. He then orders a soap-bath and change of linen, and after that waits to see if the irritation does not subside, or only orders some astringent or emollient application.

DUCKWORTH ON WAXED PAPER AS A SUBSTITUTE FOR LINT AND OILED SILK.—Dr. Dyce Duckworth, of St. Bartholomew's Hospital (*Archives of Dermatology*, January), when using ointments for the cure of disease or abrasions of the skin, applies them on waxed paper instead of lint. This is the material used by pharmacists for covering gallipots, etc.; it consists simply of thin tissue-paper dipped in melted wax. A piece of this is cut of a size sufficient to extend beyond the margins of the sore place; the ointment suitable to the case is then smeared on the centre, not too thickly, and it is then carefully adapted to the affected part. It is adhesive, so that there is no necessity for strapping or bandaging; it is very cheap, and it is cooler than lint. Dr. Duckworth uses it even for extensive eczema of the limbs.

J. W. LANGMORE, M.D.

LAGRANGE ON SCLERODERMIA.—Dr. Lagrange, in his *Contribution à l'Étude de la Sclérodémie avec Arthropathie et Atrophie Osseuse* (Paris, 1874) gives an account of a necropsy, which he performed on a patient who presented all the characteristics of scleroderma, and of another case which came under his notice. The facts observed by him induce him to come to the conclusion that scleroderma is originally set up by a chronic inflammation of the skin and the subcutaneous cellular tissue, which may go deeper, reach the bones and the articulations, and may bring on, as a secondary result, by anatomical lesion of the peripheric nervous filaments, some comparatively unimportant trophic disturbances, which are only of the second order. Nothing gives reason to rank scleroderma as a primary trophic disturbance; the spinal marrow, nerves, and muscles, not having shown any considerable alteration on *post mortem* examination.

RECENT PAPERS.

- On Malignant Exfoliating Herpetides. By Dr. Guibout. (*L'Union Médicale*, December 24.)
Observations on Leprosy and its Treatment. By W. Johnston. (*Indian Medical Gazette*, December 1, 1874.)
Bronchial Pemphigus. By M. A. Castan. (*Montpellier Médical*, December, 1874.)
On the Treatment of Scabies. By Dr. R. Liveing. (*British Medical Journal*, January 30.)

REVIEWS.

- Histoire de la Peste Bubonique en Perse.* Premier Mémoire. Pp. 42.
Histoire de la Peste Bubonique en Mésopotamie. Second Mémoire. Pp. 91. Par J. D. THOLOZAN. Paris, 1874.

The following are the conclusions arrived at by Dr. Tholozan in these two instructive memoirs.

Persia has never been, in any portion of it, a country in which plague has prevailed as an endemic. No universal epidemic of the disease has ever been observed in that country; the half at least of it has always escaped the plague.

The epidemics appear almost always to commence in the cold and mountainous part of the north-west, where the little outbreak of 1871 appeared. They have been separated from each other by intervals, varying from ten to sixty years.

Science has not recorded a single instance of plague of purely Persian origin, introducing itself from Persia into Turkey; the plague of 1829-31 passed from Turkish Armenia into Persia, and thence it penetrated into Mesopotamia.

The small epidemic of 1871 is an interesting etiological study; it forms a pendant to the epidemic of Hindî in 1867, and shows that the points of origin of a bubonic fever may be found as readily in mountainous districts at a high elevation, as in the low and humid plains of Mesopotamia. This had already been proved in the bubonic fever of the slopes of the Himalaya.

The great epidemics of plague in Mesopotamia in the eighteenth and nineteenth centuries have only been three in number. Their origin appears to have been exotic in this sense, that the disease first developed itself in neighbouring districts. Their course was invariably from the north or north-west to the south—from the sources of the large rivers towards their mouths. The epidemics of 1773 and of 1831 were the most severe, and spread as far as the coasts of the Persian Gulf. The epidemic of 1800 was less general, and ceased before reaching the sea.

The commencement of these three epidemics was in the winter season, their development was in spring, and their decline and extinction were in summer. Their annual recurrences followed the same rule. After an autumn incubation of at least three months, the germs of the malady reappeared in some localities in winter and in spring. These new explosions repeated themselves sometimes for three years. The disease seems to have had successive degenerations, and to have lost a part of its contagiousness, or of its power of being transported to a great distance.

With the exception of some epidemic years, and some consecutive manifestations of short duration, no endemic plague has been observed in Mesopotamia, like that which has prevailed in modern times in Egypt, in Armenia, in Georgia, and at Constantinople.

The small epidemic of plague in Mesopotamia in 1867 was of local origin. It was preceded by grave pathological phenomena, which remind us of the *pestilential medical constitutions* which sometimes preceded the arrival of great plagues in certain countries of Europe.

This localised epidemic obeyed, in its commencement, its progress, and its extension, the same laws as the three great plagues which preceded it. It showed itself, as they did, after a period of complete absence of about thirty years.

The facts most closely connected with the etiology of plague in Mesopotamia are—its following after a certain number of years of immunity, and, in the case of great epidemics, the presence of the disease in the mountainous districts of the north.

The summer season has always moderated, lessened, and arrested the development of the plague, in

the country of which Dr. Tholozan speaks. The exceptional heat of that district, especially along the shores of the gulf of Persia during the months of June, July, August, and September, appears to have acted as efficaciously in extinguishing the disease, as in the celebrated experiments determining the temperature necessary to destroy the microphytes of wine, or bacteria in disease.

As a corollary to these statements, it may be added, that several other zymotic diseases are extinguished in Mesopotamia during the hot season. Cholera is a remarkable example of this. From the comparison of a number of epidemics of it, it is ascertained that it follows the same rule as the plague; that it ceases entirely during the great heats, to reappear in autumn, winter, and spring.

These views, which show the influence of seasons and the great physical forces on epidemics, are without doubt more rational than the exclusive system of contagion. That system, which only looks out for frontiers to defend, and for barriers to erect, pays no more regard now than in former centuries, to the natural march of those great phenomena which we term epidemics. It only occupies itself with the question of the transport of morbid germs, and does not understand that the conditions of this transport are enveloped in the greatest mystery. Nature itself often opposes more effective obstacles than we can to their transmission, and sometimes it finds means which are quite unknown to us for resuscitating and disseminating those germs.

M. Tholozan, after pointing out that the inhabitants of the lower portion of Mesopotamia, like those of the delta of the Nile, are strong and healthy, offers a few words of comparison on those districts. These two districts have been considered for centuries the seat of permanent endemic plague; but history shows that the plague has not always existed in Egypt. The efforts made to explain the origin of the plague after the Mussulman conquest, from the neglect of hygienic conditions, have not been successful. The plague has existed in Egypt for many years; it has then disappeared, only to come back after a time, while there is nothing to explain satisfactorily the cause of its coming or of its going. It has been shown that in Mesopotamia, which is better adapted in appearance to nourish the disease, it has only made rare appearances for two centuries. These matters require to be studied afresh in their bearings.

J. MACPHERSON, M.D.

Diseases of Tropical Climates and their Treatment.

By J. A. B. HINTON, M.D., F.R.G.S., Surgeon-Major, African Medical Service.

We opened this book with a sincere desire to find in it something to commend, but after a candid examination we fear that, as honest critics, all we can conscientiously praise are the good intentions and diligence of the author.

Dr. Hinton is, we understand, a native of the West Coast of Africa, who was educated in this country for service in his native land; he therefore, comes before us with a strong claim to generous treatment. Still, we must be just as well as generous, and must therefore say we think our author was ill advised when he rushed into print. We have no doubt that Dr. Hinton can treat the formidable diseases of his native land with creditable skill, although he cannot write about them in a way calculated to aid others in their study. The work is made up chiefly from the writings of well-known

authors on tropical medicine, with frequent reference to the lectures by Professor Maclean at Netley; but the author cannot be said to have digested, much less assimilated, his materials, and he has not literary skill enough to present either his own observations or those of others in a useful or intelligible form to his readers. The descriptions of disease are confused; the pathology is often out of date; and the composition beneath criticism. We are really concerned to have to write of the well-meant efforts of a very meritorious man in such terms; but it is a duty we owe to the public and the profession to discourage the publication of books of this stamp. The only purpose they can serve is to injure the reputation of their authors, and to bring discredit on the science and art of physic.

On a Case of Operation for Epithelioma of the Mouth and Tongue. By HENRY MORRIS, M.A., M.B., F.R.C.S. Reprinted from the Reports of the Middlesex Hospital for the Year 1873.

This pamphlet gives a detailed account of a case of cancer of the tongue, which was under observation during almost its whole course, and for the relief of which several operations were undertaken. From May 1871 until June 29, 1873, when he died, the patient was under treatment at the Middlesex Hospital, and the varieties of treatment which were adopted made the case an illustrative one. The disease commenced first in front of the frænum, and, as it spread, it involved both the tongue and the floor of the mouth. On August 13, 1871, the symphysis menti was divided, and the whole of the disease removed. But, as often happens after operations of this kind, the symphysis united very tardily, and it was not till December 29 that the parts could be reported as thoroughly healed. During the early part of 1872 the patient was still an attendant in the out-patient department, and some minor treatment was employed from time to time. In February, 1873, he again applied, having had about nine months immunity from the disease. He had now a deep, irregular, excavated ulcer, occupying the fore part of the floor of the mouth. As this was attended by frequent hæmorrhages, the right lingual artery was tied on June 15, and he left on the 20th. But neither of these operations succeeded in arresting the occasional flow of blood, and the patient died on June 29. It is seldom, we believe, that ligation of the lingual arteries is called for in cancers about the tongue or mouth, and still more seldom that it does any real good. On the whole, this case is an instructive one, and it has been carefully observed and well reported.

CORRESPONDENCE.

CYSTS IN THE BROAD LIGAMENT.

(To the Editor of the MEDICAL RECORD.)

SIR,—In your number for January 13, a case is reported in which M. Auger 'removed a dermoid cyst from between the folds of the broad ligament.' The report states that 'the ovary was not seen,' and that 'the Fallopian tube passed over the upper part of the tumour.' Your reporter remarks that 'the tumour corresponded, in its anatomical relations, with the extra-ovarian cysts, which are affirmed by some to be always unilocular, and derived from the organ of Rosenmüller,' but that, on the contrary, this was 'a cyst evidently of ovarian origin,' etc.

Now, I am not aware that any one has affirmed that tumours between the folds of the broad ligament are necessarily parovarian, in virtue of their position. But it is affirmed that a tumour in this position, whether unilocular or multilocular, with the ovary attached and in a healthy state, perhaps altered in form by mechanical action, is parovarian. The case, as reported, is utterly useless in the settlement of a knotty question, and it is almost idle to speculate on the data here furnished. It may be interpreted thus: That the ovary was not seen probably because it was involved in the mass, and the downward growth of the tumour, in the direction of least resistance, until stopped by the uterus and the pelvic fascia, was simply an accident of the position of the starting-point and the direction of the degenerative process. It is by no means uncommon for an ordinary multilocular ovarian tumour to pass downwards into the folds of the broad ligament and to stretch the Fallopian tube beyond its usual length; and a cursory examination will invariably afford an explanation. Your Reporter adds the remark that 'the case would be more interesting if the ovary, or any remains of it, had been seen.' It would have been much more interesting had the ovary been found healthy.

GEO. GRANVILLE BANTOCK.

[Dr. Bantock appears to have misunderstood the meaning of the first sentence which he quotes—the words are, 'extra-ovarian cysts, which are affirmed by some to be always unilocular, and derived from the organ of Rosenmüller,' not that it has been affirmed that 'tumours between the folds of the broad ligament are necessarily parovarian in virtue of their position.'—*Rep.*]

MISCELLANY.

ACCORDING to the *Gazette de St. Petersburg*, 250 young women are now attending the courses of medicine and obstetrics at the St. Petersburg School of Medicine and Surgery.

THE ARGUMENTUM AD HOMINEM.—The scholastic troubles of the medical academies of Europe seem to have attained a disreputable climax in Spain. The professor of physiology at Barcelona, Signor Varela, was hissed and insulted at lecture by a large number of his pupils, and so far forgot himself as to draw a revolver, and threaten to fire on his tormentors. A terrible disturbance and general scamper were the result. The rector of the university disarmed the professor, but could not appease the wrath he had excited in the minds of his pupils, and the aid of the recognised guardians of the peace was perforce enlisted.

ALCOHOL.—Dr. Richardson, in his first Cantor lecture, gives some information on this much used word. He says that the first employment of the English word alcohol is obscurely recorded. Bartholomew Parr, one of the most learned of scientific classics, taking the usual derivation of the word from the Arabic *Al-ka-hol*, a subtle essence, says it was originally employed to designate an impalpable powder, used by the Eastern women to tinge the hair and the margins of the eyelids. As this powder, viz., an ore of lead, was impalpable, the same name was given to other subtle powders, and then to spirit of wine exalted to its highest purity and perfection. The earliest systematic and truly scientific use of the term that Dr. Richardson could discover is in Nicholas Lemert's *Course of Chemistry* published in 1698. There the word is used as a verb, 'to alcoholise,' and the definition of this is said to be 'to reduce to alcohol, as when a mixture is beaten into an impalpable powder.' The word, says Lemert, is also used to express a very fine spirit; 'thus the spirit of wine well rectified is called the alcohol of wine.'

THE INFLUENCE OF ILLEGITIMACY ON MORTALITY.—At the meeting of the Paris Academy of Sciences on

January 12, M. Gustave Lagneau read a report on this subject, in which he showed that the proportion of illegitimate still-born children in France is approximately twice larger than in legitimate children, viz., sixty-six to seventy-nine in 1,000 instead of from thirty-one to forty-one. This excess of mortality in illegitimate still-born children is due in a certain proportion to criminal practices; but greatly also to the state of privation and poverty in which gestation and delivery take place. In France there are seventy-five illegitimate births in every 1,000 registered, a much larger proportion than in Germany, and the number of these illegitimate births increases in proportion to the obstacles in the way of marriage. During the first year of existence 314 out of 1,000 illegitimate children die, whilst the more fortunate infants born in wedlock only perish in the proportion of 165 per 1,000. This almost double mortality is referable to many causes, which affect the unfortunate little creatures long after their entrance into this world. In fact, out of 1,000 conceptions registered twenty years ago, 640 legitimate children now survive, whilst only 238 illegitimate offspring have lived through the difficulties of their existence, being one-fourth only of the original number.

A NEGLECTED MEMBER.—Many years have now elapsed since Benjamin Franklin published a little book called 'Protest of the Left Hand against the encroachments of the Right Hand,' in which he desired to show how unwise it is to cultivate the physical education of the right hand only and to neglect entirely that of the left. Although his counsels were not attended to at the time, yet the question he raised has continued from time to time to receive the attention of physiologists, some of whom maintain that the extra work thrown on the right hand in which the whole of the right side takes its share, is the cause of the more extensive development of that side of the body in comparison with the left. In support of this opinion the example of the lower animals is adduced, in whom either there is no difference between the two sides, or they present a considerable development of the left side. In the first case, the animals make use of both sides of the body equally; in the second, they use the left as a matter of preference. Physiology offers no explanation of the very ancient custom of making use of the right hand and the right side of the body. Several writers, including Dr. Brown-Séquard and some anonymous contributors to *La Sforza* and the *Revue Médicale de Lyon*, have lately endeavoured to turn public attention to the subject, with the object of cultivating the use of the left hand as much as that of the right. It is asserted that the left hand, if properly trained from youth, could take its share in writing, fencing, painting, and the practice of the fine arts in general; and as a practical outcome of the due use of this almost disused member, it is pointed out that the painful affection known as writer's cramp might be avoided, if both hands were equally available for writing. Dr. Brown-Séquard is of opinion that the powers of the left side of the brain are in abeyance from the disuse of the left side of the body generally. An interesting exposition of his views on the subject will be found in the current number of the *Cornhill Magazine*.

THE NEW AQUARIUM AT NAPLES.—The *Gazette d'Augsbourg* contains some details respecting the new Stazione Zoologica at Naples. The architects of this building have not endeavoured to rival the glories of the aquaria of Vienna and Brighton, but the interest and importance of the aquarium consists in the variety and extent of the collection of marine animals, fish, shells, corals, mollusca, medusæ, crustacea, worms, sponges, starfish, etc., which people the tanks. These tanks contain every animal which inhabits the depths of the sea. The medusæ and their congeners, as well as some other mollusks, do not thrive very well. There are in this aquarium eight large octopods, one of which cut in two a large lobster with which he was having a fight; another one ate up, to the last atom, a live rat, which had been spared by the dogs employed

at the aquarium for hunting those animals. The pumps for supplying the tanks are worked for twelve hours a day; for the remaining twelve hours there is no current of fresh water, and the animals seem to thrive well under these conditions. Last summer some observations were made on the electric ray. An English zoologist, who is preparing a work on the history of sharks, stayed four months at the station, and during that time 400 sharks' eggs were placed at his disposal. This aquarium has thus become a field where naturalists can pursue their investigations, and where they find facilities for pursuing their studies and experiments in the buildings of the establishment itself. The director of the establishment informed the writer of these details that, since it was opened in February last, twenty-two naturalists had already come thither to work in the laboratories. It contains twenty of these rooms, which may be hired, and in fact, are already let to foreign governments or scientific institutions. It is believed that this establishment will exercise a beneficial influence on the development of the biological sciences; it owes its origin to a German naturalist, Dr. Dohrn; and the German booksellers have contributed to it a library worth about 1,500*l*. The English naturalists, headed by Mr. Darwin, have also testified their interest in this novel scientific enterprise by a contribution of 1,000*l*. to its funds.

DARK ROOMS MADE LIGHT.—Chappuis' Patent Reflectors are used to reflect the daylight, and do away with gas during the day time, thus saving expense and ministering to both health and comfort. They can be adapted wherever there is either window, skylight, fanlight, area, grating, or any communication with the outward daylight. These reflectors are made of crystal surfaces, corrugated or shaped according to scientific principles, and coated with deposits of pure silver, also of silver-plated metal, rendered water and air-tight and fitted in well-constructed frames of different shapes and sizes as required. Being fixed outside windows or under skylights, they reflect the daylight rays and diffuse them in all places or apartments where the natural light is insufficient, owing to the small size of windows or the proximity of walls, houses, etc. Mr. Chappuis' patents are patronised by H. M. Commissioners of Works, the Royal Engineers, the Admiralty, all leading architects, contractors, bankers, merchants, manufacturers, etc.; they are also in general use for private houses, institutions, etc., upwards of twenty thousand having been supplied since 1851. The reflectors may be seen in operation and prospectuses obtained at the manufactory, No. 69 Fleet Street.

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The London Medical Record.

WEDNESDAY, FEBRUARY 24, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

BOWDITCH ON RECENT RESEARCHES ON VASO-MOTOR NERVES.*

One of the most important recent advances in our knowledge of the physiology of the circulation is the distinct recognition of the existence of a class of nerve-fibres, whose function is to *dilate* the vessels to whose muscular walls they are distributed. That vascular dilatation may follow the stimulation of a nerve supplying the vessels under observation, is not a recent discovery. The fact that irritation of the chorda tympani produces vascular dilatation and increased secretion in the submaxillary gland was observed by Bernard as long ago as 1858; but it is only within a few years that the cause of this dilatation has been shown not to lie in the increased glandular activity. This point may be regarded as having been settled by the experiments of Heidenhain,† who found that, on a dog under the influence of atropine, irritation of the chorda tympani caused no increased salivary secretion, though the vascular dilatation took place as usual.

For a long time the fibres of the chorda tympani in the submaxillary gland and the nervi erigentes distributed to the corpora cavernosa penis, as described by Eckhard‡ and Lovén||, were regarded as the only nerves possessing the power of producing vascular dilatation in the parts supplied by them, the observations of Bernard, which led him to attribute to the pneumogastric nerve a similar power over the vessels of the kidney, having lacked confirmation.

Dr. Bowditch then summarises the observations of Vulpian on the chorda tympani and lingual nerve (LONDON MEDICAL RECORD, April 30, June 4, November 19, 1873); of Goltz, Putzeys and Tarchanoff (*ibid.*, December 16, 1874); and gives the following theory as an exposition of his views on the subject.

In consideration of all these observations, the most probable view which we can take of the relations between the vaso-motor nerves and the vessels to which they are distributed seems to be the following.

The smooth muscles of the blood-vessels are kept in a state of moderate tonic contraction, under the influence of a plexus of nerve-fibres and ganglion-cells closely surrounding and imbedded in the vascular walls.§ This tonic contraction is increased by an impulse coming from the central nervous system through the 'vaso-constrictor' nerves.

That these 'vaso-constrictor' nerves are in a state of constant activity, is evident from the fact

that vascular dilatation follows their section (for example, in the cervical sympathetic or sciatic nerves). This vascular dilatation is, however, not permanent. After ten days or a fortnight, the vessels assume their original dimensions. To explain this, we must assume that, after separation from the central nervous system, the nervous plexus surrounding the vessels gradually acquires a higher degree of activity than it possessed before. A justification of this hypothesis is found in the analogous observation, that the reflex centres in the spinal cord acquire a greater irritability after their separation from the brain by a section in the cervical region.

The 'vaso-dilator' nerves act by inhibiting the activity of the ganglion-cells in the nervous plexus around the vessels, thus causing a diminution of the vascular tonicity. These nerves are not in a state of continual activity, as is proved by the failure of the vessels to contract when the nerves are divided.* They are to be regarded, therefore, not as constant but as occasional antagonists of the 'vaso-constrictor' nerves.

According to this theory, there is an evident analogy between the muscular walls of the blood-vessels and the heart. In both, the conditions of activity are contained in the organs themselves; and in both, influences derived from the central nervous system may either increase or diminish this activity, the vagus nerve being analogous to the vaso-dilators, and the 'accelerator' nerve to the vaso-constrictors.

It will be noticed that this theory affords no explanation of the observation of Goltz on the effect of a second section of the sciatic nerve on the temperature of the limb. Should this observation be confirmed, some modification of the above theory will be necessary.

ON ARTIFICIAL SALT BATHS (SOOLBÄDER).

BY DR. G. SIEGMUND.†

The object of this paper, by Dr. G. Siegmund, published in the *Berliner Klinische Wochenschrift*, January 11 and 18, 1875, is not to explain what operation the various ingredients of salt springs have on the organism, but to show how the use of salt baths may be introduced into every house. Salt springs, which are obtained from various sources (from natural wells, from borings, from rocks, by letting in water to dissolve the salt they contain) not only differ from each other very much in their degree of concentration, but they often vary in the amount of their mineral ingredients in the same source. Natural springs, and those got by boring may, according to the nature of the rock which is superimposed, be greatly influenced by the daily rainfall. Such natural dilutions are easily made up for by adding a suitable amount of salt; and it would not be necessary to allude to this, if such deficiencies were always attended to in bathing establishments. Whoever has often been present at the filling of baths in such places, must know how little attention is paid to the degree of concentration. But the principle should be laid down, that the degree of concentration ordered by the medical man, should be as much attended to, as the degree of temperature. The quantity of salts present in the waters of the most visited baths, varies from about 1·5 to 31 per

* *Boston Medical and Surgical Journal*, January, 1875.

† Pflüger's *Archiv*, vol. v. p. 309.

‡ *Beiträge*, vol. iii. p. 125.

|| Ludwig's *Arbeiten*, 1866, p. 1.

§ Vulpian, *Leçons sur l'Appareil Locomoteur*, p. 36.

* Vulpian, *Archives de Physiologie*, vi. p. 175.

† Abridged Translation of a Paper read before the Berlin Medical Society,

cent. (Rheinfelden) or to the strength almost of a saturated solution; and if we consider only the amount of chloride of sodium, those having less than 1 per cent. are scarcely worth counting, while the stronger ones reach 20 and even over 30 per cent.

But we must guard against considering the strength of the natural water as identical with the strength of the bath, and here attention must be called to a fault from which few monographs are free, not even Dr. Niebergall's careful tables in Valentiner's *Balneology*, 1873. Handbooks, and special accounts of baths, give analyses of salt springs; but as there are but few salt springs whose waters are used in their natural state, most salt waters are, in fact, constantly either strengthened or weakened, according to their degree of concentration. It is not enough to tell us how much is added to a bath, unless we are told what the whole quantity of water in it is. The quantity of water added to reduce a concentrated solution, and the quantity of a weak salt water to which a certain amount of the concentrated solution is added, must both be known. But from neglect of this, we generally are ignorant of the real strength of a bath, and in many places can only ascertain it by the use of a hydrometer. We imagine a strongly concentrated fluid, when we think of the Ischl spring, containing 24·5 per cent. of salts, and of a bucketful of it containing thirty to thirty-three pounds, and know that one or two bucketsful are added to the bath. But if we reflect that a full bath requires about fifteen bucketsful of water to fill it, we find that the addition of one bucketful only brings the bath water up to the strength of a salt spring of the second degree, and of two buckets to that of one of the third degree; and in Arnstadt, where the natural spring contains from 22 to 25 per cent. of salt, although, according to Niebergall, baths are occasionally prepared of the strength of 8 per cent, yet the usual strength is only for children from 1 to 2 per cent., and for grown-up people 3 per cent.

The actual practice at different baths varies much, and depends much on the abundance or otherwise of the supply of salt. If in Ischl the baths seldom exceed 3 per cent., and in Kösen the baths of nearly 5 per cent. are counted strong and exciting, no one thinks anything of the nearly 5 per cent. water of Colberg. In Salzungen the strength is usually from 3 to 6 per cent., and this is often further fortified by the addition of mother-liquor, as it is called. The baths in Rheinfelden are of a strength of 3 to 8 per cent., and in Frankenhausen of 7 to 8 per cent. and more; yet the patients do not complain of excitement, sleeplessness, or of irritation of the skin, or of any other unpleasant effect. We are wont to think only of the chloride of sodium in salt springs; and indeed the other constituents amount to a very small quantity, as is apparent from the following table. (*See next column.*)

This table shows sufficiently the immense preponderance of common salt. There are, however, some exceptions to this rule: thus, in the Hubertusbad, the total of mineral ingredients is 2·69 per cent.; of this only 1·49 is chloride of sodium, while 1·16 is chloride of calcium, and in a well in Suderode the chloride of calcium, 1·5 per cent., exceeds the chloride of sodium, 1·1 per cent. In Zaizon, one of the iodine and bromine springs, in 0·27 of mineral ingredients 0·06 is the amount of chloride of sodium, 0·02 of iodide of sodium. Similar exceptions might be adduced, but the general rule of the entire preponderance of chloride of sodium over other con-

stituents remains unaffected. With reference to the occurrence of other salts, there is no uniformity. Besides sulphate of lime, which is rarely absent

	In 100 parts of water.	
	Total constituents.	Not chloride of sodium.
Rheinfelden	31·8	0·7
Ischl	24·5	0·9
Salzungen	26·5	0·8
Arnstadt	23·7	1·3
Reichenhall	23·3	0·8
Bex	17·0	1·3
Julius hall	6·5	0·4
Elmen	5·3	0·4
Colberg	5·1	0·7
Kösen	4·9	0·5
Sulza	10·7	0·8
Kreuznach (Oranien) .	1·7	0·3
Münster am Stein . .	0·8	0·1
Rehme	4·0	0·8
Nauheim	3·5	0·6
Kissingen (Soolspindel)	1·4	0·3

(and which is of no great therapeutic importance), sulphate of soda and of magnesia occur, but by no means constantly, and only in small quantity.

Passing by iodine and bromine, which do not bear directly on our object, the remaining salts are combinations of chlorine and alkalis. Of these chloride of magnesium is usually present; chloride of lime and chloride of potass are so occasionally.

I must next speak, Dr. Siegmund says, of the practice prevailing almost everywhere of strengthening the baths with the mother liquors.

Here, too, there is no rule as regards the chemical mixture. Iodine and bromine, referred to with much pride in some mother-liquors, are entirely wanting in others, and when they are present, what amount of real efficiency do they possess? In the lye of Münster, according to one analysis, we have 0·59 per cent. of bromide of sodium and 0·05 of iodide of sodium; according to another one, we have 0·6 of the bromide without any iodide, while another gives the Theodorshall spring 0·77 of bromide of sodium and 0·0007 of iodide of sodium. We may then have in those two lyes, 0·6 to 0·7 of the bromides and iodides.

Suppose we add, what is counted a large quantity, 10,000 grammes of the lyes to a bath containing 300 litres, we have about sixty grammes of bromine and iodine compounds, or perhaps 0·02 per cent. It may be possible, that even with this degree of dilution there may be, in the presence of the other salts of the solution, some slight cutaneous absorption; but we must remember that the above strength is greater than that of the baths usually supplied.

Where bromine and iodine are absent, it is generally the presence of a large amount of chloride of calcium that is characteristic—for instance, in Nauheim 29·97 per cent., in Münster about 25 per cent., in Theodorshall 33·2 per cent.; but in some places chloride of magnesium is in excess in the lye, for instance, 48·6 of chloride of magnesium against 23·9 of calcium in Wittekind, and 24·4 of the former against 17·06 of the latter in Arnstadt. In Salzungen there is 17·2 per cent. of chloride of magnesium and none of calcium, and in Ischl and Rheinfeld the lye is practically only a very rich solution of common salt, with perhaps a tenth of other chlorine compounds which are soluble in the lye.

The great dissimilarity of the composition of the salt springs naturally repeats itself in the lyes. It is out of the question to talk of them as homogeneous fluids; and even if their constituents were well ascertained, and their variations were closely copied in

their imitations made at Leopoldshall, yet it is beyond doubt, that physicians order lyes quite promiscuously, those of Colberg, Schonebeck, Salzung, Wittekind, as they may be nearest to hand, and that they only use them with more discrimination, perhaps, in the case of those valued for containing iodine or bromine.

We may draw one general conclusion from all this, that we do not act under the guidance of any principle. We do not know what is the special action of the chloride of sodium, or that of the other salts. Our only criterion is the amount of salts; we know that a certain degree of concentration is necessary to produce a certain stimulation of the skin.

As examples of the absolute amount of salts in individual baths, we may further mention, that the water of Elmen contains sixty pounds of salts in a bath of thirty cubic feet; that of Salzungen, in the bath (the amount of the water of which is not given), forty to forty-eight pounds; and that of Frankenhäusen forty-eight pounds in only 300 litres of water.

We shall next inquire what course has been usually pursued in the preparation of artificial salt baths as compared with natural ones. We make use of sea-salt, seldom of chloride of sodium, or of mother-lye or its salt, to strengthen the salt baths. But in what quantities do we use them? The quantity of sea-salt or of chloride of sodium for a bath is usually set down in handbooks at two to six pounds. The *Prussian Medical Calendar* of 1874 was the first to say from ten to fifteen pounds. Now the former maximum of six pounds, which even now is counted a considerable quantity, gives in a bath of 300 litres a solution of 1 per cent. An idea may be got of how little conception people had of the real strength of such baths, from the fact that patients in hospitals here when ordered salt baths, usually were ordered not more than six baths, each of which contained 2 lbs. of salt. But the uselessness of the ordinary practice is still more apparent in the case of the mother-lyes. It was usual to order 1 to 2 lbs. for a child's bath. Usually the lye was selected with reference to the quantity of iodine which it contained; but had one any right to expect important results from so small a quantity? The Kreuznach lye, the most popular of all, contains in 500 grammes about 3 of iodine and bromine compounds. The smallest baths used contained 50 litres or 100 lbs., = 50,000 grammes; the 3 grammes added to this gives a proportion of 0.006 of iodine and bromine compounds. Grown-up people no doubt were ordered 1 or even 2 litres; but in a bath containing 200 to 300 litres, the dilution was still greater. And if we must now admit that the ordering such small quantities in private practice was in fact a sham ordering, what is the justification for using mother-lyes at all? It seems really to have been the result of following an ancient, somewhat mystical belief in the action of salts, without reference to the quantity in which they were present. In imitating natural salt baths, we are thus constantly ridiculously behind our originals. The grounds of this are two: first, if we are to tell the truth, the carelessness of the physicians, who had forgotten to calculate the proportion of salts necessary; and, secondly, the increasing dearness of the materials of the bath. We are thus brought to face the fact, that our country is rich in a material which is easily procured, yet is proscribed from common use by artificial circumstances, and especially by taxation.

In the hopes of getting the tax taken off salt that

was to be applied to bathing purposes, I applied to the minister of commerce, and asked whether the rough salt which, as supplied to chemical works, pays only a small duty, might not be subject to an equally low rate of tax when supplied for baths; but there were financial difficulties in the way, and the minister obligingly called my attention to the so-called Stassfurt bath salt.

This is a rich potash salt, which is found in a natural state in Stassfurt; its average constitution is as follows:

	Per cent.
Chloride of potassium	16.8
Chloride of magnesium	26.5
Chloride of sodium	13.6
Sulphate of magnesia	11.6
Water, etc.	31.6
Total	100.0

It will be observed that there is not much chloride of sodium here. Other chlorine compounds predominate, especially chloride of magnesium, and the composition resembles that of a mother-lye rather than of a salt spring; nor does it strongly resemble the saline contents of the water. The water of the Atlantic Ocean contains nearly three and a-half per cent. of salts, which consist of

	Per cent.
Chloride of sodium	76.05
Chloride of magnesium	9.0
Chloride of potassium	4.0
Bromide of sodium	1.15
Sulphate of lime	4.60
Sulphate of magnesia	5.20
Total	100.0

Notwithstanding its difference of composition from salt springs or sea water, the Stassfurt salt is coming every day into more extended use; and I have myself frequently used it up to the strength of 4 per cent. and with exactly the same effect as salt baths of the same strength.

Its great advantage is its cheapness; 1 lb. costs only about two pfennigs (one-fifth of a penny); it therefore can readily be employed in poor-houses and hospitals. But we must be more accurate for the future in ascertaining the exact strength of the baths supplied. For all ordinary purposes it is enough to imitate the strength of the weaker salt springs or of the ocean, and give a bath containing from 1 to 4 per cent. of salt. For the earlier ages from 1 to 2½ per cent. is strong enough. For adults, unless under special circumstances, it should not be weaker than 3 per cent. Calculating the amount of water, a child's bath requires from 1 to 2 lbs. of the salt; an adult's, 12½ to 16½ lbs. The rich have usually larger baths, and may require 48 lbs.

But another kind of salt also occurs at Stassfurt, containing a larger quantity of chloride of sodium; its chemical composition is as follows, according at least to the latest analysis of it.

	Per cent.
Chloride of sodium	43.0
Chloride of potassium	9.4
Chloride of magnesium	12.8
Sulphate of magnesia	15.6
Sulphate of lime	1.5
Water	17.7
Total	100.0

Viewed chemically, this compound comes nearer sea-salt and various mother-lyes, and would therefore seem better adapted for our purpose; but, practically, a portion of the salt is not only very insoluble,

but it swells before it dissolves. Possibly these disadvantages may be overcome, and it is to be hoped that they may be so, as this salt is even cheaper than the last-named one.

In any case, there is no longer any difficulty in supplying salt-baths to the poorest patients; and we must have a complete reform of baths of this kind. Their strength can no longer remain a matter of guess work. Their percentage of solids must always be ascertained with a hydrometer. It will also save time in preparing baths, if concentrated solutions of the salts be kept ready, which may be poured at once into the baths, and will prevent the delay of waiting for the solution of the salt, if put in in its solid state. There would be no difficulty in having artificial baths on a large scale, in introducing carbonic acid into the solutions of the salt, and in having inhalation-rooms; and the managers would have their establishments more under control than the proprietors of natural waters have their ones.

No doubt natural salt-baths will always retain the advantages they possess—in locality, in climate, and in amusements; and will continue to be resorted to in summer. But rivalry will lead to their exact composition being more minutely studied; and, indeed, the whole subject of the operations of chlorine compounds on the system requires to be more fully investigated. Possibly other analogous salts might have the same effect.

[Of late years, the exaggeration which has prevailed about the strength of sool-baths, and the fabulous amount of iodine they were supposed to contain, has been pretty well exposed. Dr. Siegmund's paper will help to enforce more precision. In Germany, where sea-bathing is entirely beyond the reach of the mass of the people, sool-baths have always been favourites, and they are growing in popularity. In England salt-baths have been much neglected. Sea-bathing is rarely pursued systematically; and it is only of late that the idea of adding to the strength of sea-water baths has been thought of. Of weak sool-baths, England has Woodhall Spa, tolerably prosperous; Ashby-de-la-Zouche, used a little; and Victoria Spa, we believe, closed. The only strong sool-baths in England are those of Droitwich, to which place and to its new bathing establishment the LONDON MEDICAL RECORD has several times called attention during the last two years.—*Tr.*] J. MACPHERSON, M.D.

DE PIETRA SANTA ON THE PATHOGENESIS OF DISEASES FROM MORBIFIC FERMENTS, AND THEIR TREATMENT BY ALKALINE HYPOSULPHITES AND SULPHITES.

Dr. De Pietra Santa has published, in the *Mouvement Médical*, p. 91, advance sheets of the chapter on medication by sulphites, from the volume which he is about to publish on the rational treatment of pulmonary phthisis (*Le Traitement Rationnel de la Phthisie Pulmonaire*.) He announces that treatment by the alkaline and earthy sulphites has been and will always be fruitful in good results. The experimental researches of Dr. Polli, of Milan, have been conducted with all desirable science and skill. (See Dr. Timermans' report to the Academy of Turin.) These researches of Dr. Polli on diseases from morbidic ferments, and their treatment by alkaline and earthy sulphites and hyposulphites, have given rise to

numerous ideas, writings, and practical applications of the treatment in Italy, England, and Belgium. Dr. De Pietra Santa has thought it his duty, before making public the contingent of facts and observations collected by him during a first period of ten years, to thoroughly determine the theoretic principles of medication by sulphites, and to make known with impartiality the results obtained by a large number of distinguished practitioners. Numerous experiments made on animals with all the guarantees of scientific exactness, have demonstrated that the artificial injection of certain morbidic substances produces serious and well-marked diseases, presenting the characteristics of catalytic affections. 1. The injection of a certain quantity of pus into the blood produces pyæmia, and the affections characterised by multiple of abscesses. 2. The injection of putrid matters produces septicæmia; that is to say, the diseases known under the name of putrid infections, and characterised by the symptoms of gastro-enteric fever. 3. The injection into the blood of materials eliminated by the mucous membranes in certain contagious diseases, as glanders, reproduces the glanderous affection itself. The question then arises, whether the morbidic ferments in the blood of animals can be neutralised, without altering that liquid so as to be irreconcilable with life; since facts and varied experiments lead to the admission of this neutralisation, notwithstanding the doubts of Claude Bernard, who writes that 'neutralisation of ferments is impossible, because, for that purpose, it would be necessary to change the properties of the blood to such an extent that life would no longer be possible.'

By examining the action of sulphurous acid on organic substances, it is easy to become convinced that it is one of the most powerful of the antifermentative agents. It prevents or stops all fermentation of known organic matters, and impedes the putrefactive metamorphoses in the animal tissues and liquids.

Sulphurous acid acts on the fermentative principle, not by decomposing it, like most so-called antiseptic substances, but by simply modifying its molecular aggregation. Its antiseptic action is as powerful as that of arsenious and hydrocyanic acids, without being, like the last, a poisonous substance. The impossibility of administering sulphurous acid either pure or in a gaseous state, or in a watery solution, has led Dr. De Pietra Santa to combine this acid with alkaline or earthy bases, under the form of sulphites of potash, soda, lime, magnesia, etc. These sulphites possess the antifermentative properties of sulphurous acid. Their action is even more constant and more penetrating; and, as they are perfectly tolerated by the living organism, they may be administered internally in medicinal doses, and sometimes in the liquid state. Absorbed by the lacteal vessels and by the veins, the sulphites diffuse themselves throughout the blood-mass, exercising a specific and benign action on the various materials of the blood and on the tissues derived from it, during the whole time indispensable for their complete transformation into sulphates. This transformation, which is produced by the oxidising action of the phenomena of respiration, takes a somewhat long time.

In fact, whilst the sulphites are found again in the urine a few hours after their administration, it is only at the end of twenty-four hours that they are eliminated in the condition of sulphates. To prolong the presence of the sulphites in the organism,

and to retard their conversion into sulphates, when it is desired to protect the blood against the absorption of a morbid ferment, hyposulphites of the same bases must be substituted for sulphites. These hyposulphites require a longer oxidising action to bring them into the condition of sulphates, and they at the same time provide a means of carrying and introducing into the blood very active sulphites in the nascent state. Thus, as a general rule, the sulphites and the hyposulphites which are introduced into the organism pass into the secretions in an always higher degree of oxidation; the hyposulphites as sulphites, the sulphites as sulphates.

The seventy experiments instituted on animals for the purpose of demonstrating the possibility of neutralising the morbid ferment may be divided into three categories,—*A* with pus; *B* with putrefied blood; *C* with glanders. They completely confirmed the principles laid down, whilst furnishing an amount of complementary information, useful in showing with greater certainty the numerous therapeutic applications of this new system of medication. 1. The blood, urine, viscera, and muscles of animals submitted to the daily action of alkaline sulphites, are, after death, less quickly attacked by the phenomena of decomposition and putrefaction. 2. Animals to which a certain quantity of sulphites has been administered resist the morbid action of pus, putrefied blood, and glanders injected into their veins, whilst the same doses of virus produce serious disease and death in animals to which sulphites have not been administered. 3. Animals submitted to the injection of putrid matters (pus or putrefied blood), into whose veins a solution of alkaline sulphite is immediately afterwards injected, resist infection or recover in a few days; whilst other animals, placed in identical conditions, but without the sulphites, succumb to typhoid fever. 4. The same animal which has undergone putrid injection without any serious accidents, because it had previously been submitted to the action of sulphites, becomes seriously disordered or dies, if it receive a fresh injection of the same quantity of putrid matter without having been sulphitised. 5. In animals inoculated with the mucus of glanders, and treated before or after the operation with sulphites, even when the resulting wound is converted into the characteristic sore of glanders, a sensible modification of the sore is noticed, followed by cicatrisation. The same inoculation of glanderous mucus in other animals not subjected to the influence of sulphites, produces, *in situ*, a phlegmon which kills in a few hours, or a general infection with multiple abscesses leading to marasmus and death.

It now becomes a question, to which alkaline salts the preference should be given. The sulphite of magnesia in the solid state is easily administered internally. The sulphite of soda, which effloresces readily on contact with the air, possesses a very marked odour of sulphurous acid; very soluble in water, it is better in fresh solutions for dressings, lotions, or external fomentations. As the sulphites of potash and ammonia have a very disagreeable flavour, and change very easily, they should be reserved for the external treatment of certain sores of a malignant nature.

The hyposulphite of soda may in many cases be substituted for sulphite of magnesia. It is very soluble, and its flavour is very tolerable; its most logical indication is as a prophylactic. As it contains more sulphur, it furnishes, under the influence of the

action of the respiratory organs, sulphite of soda in the nascent state in the heart itself.

The hyposulphite of lime, which has not a disagreeable taste and keeps well, is specially indicated when it is desirable to protect the organism against the effect of purulent absorption, or to favour calca-reous deposit and obliteration.

It is, however, in the class of diseases arising from purulent absorption that the most strongly marked therapeutic results should be found, because in them are found conditions of genesis analogous to those which were shown in experiments on animals.

Drs. Sestini and Ferrini, of Turin, have administered the hyposulphite of lime with success in several cases of tuberculosis in the third stage, with nocturnal fever and abundant and foetid expectoration. Polli has already made an important series of observations, which all tend to demonstrate the serious modifications in the augmentation of the general vitality, which take place in the nature and quality of the matters expectorated in the height of hectic fever. In each case, the diagnosis of the disease is established on the general symptoms and on the direct signs of the anatomical change furnished by auscultation and percussion. Dr. Rodolfi says that with the sulphites of magnesia he has been able on several occasions to combat violent attacks of fever with shiverings, in tuberculous patients arrived at the third stage, when this fever of consumption had been treated without success by preparations of quinine. Brunetti, of Constantinople, combats zymosis of the respiratory passages by preparations of sulphite of soda and hyposulphite of lime.

Zalloni and Parascheva, of Syra, congratulate themselves on having been the first to employ sulphites of soda, which have yielded surprising results at the commencement of tuberculosis. Dr. De Pietra Santa states that he has seen the excellent effects of hyposulphite of lime on the second and third stages of pulmonary phthisis. It is well known that in this terrible disease there is a time, in the cavernous stage, when the treatment can only aim at patching up certain morbid phenomena and prolonging the life of the patient. At that time, the pus which is not entirely eliminated by expectoration is absorbed into the organism; and this purulent infection is shown by the nocturnal fever, the diphtheritic irritation of the buccal and gastro-enteric mucous membrane, the colliquative diarrhoea, the nocturnal sweats, and the general emaciation. To prevent this decomposition of pulmonary tissue and to combat the putrid absorption, logic bids us have recourse to therapeutic agents capable, first, of protecting the blood against the catalytic action of the pus which penetrates into the circulatory torrent; secondly, of thus diminishing the purulent exudation in the pulmonary cavities.

It is here that clinical observation has stepped in to demonstrate that alkaline hyposulphites are perfectly indicated to prevent this general decomposition; to arrest the deleterious action engendered by the purulent focus in the blood; to moderate the partial phlogoses of the pulmonary tissue; and, finally, to induce the phenomena of deoxidation. By protecting the blood against the catalytic action of the pus which penetrates into the circulatory torrent, they diminish by so much the purulent exudation in the pulmonary cavities.

As to the hyposulphite of lime, independently of the qualities which it shares with the salts, its congeners, it offers a certain and convenient means of

introducing lime into the body, with the effect of favouring the transformation of tuberculous into cretaceous or plastic matter. This salt, the hyposulphite of lime, penetrating into the blood, thus fulfils the double indication of opposing itself to the effects of purulent absorption, and of effecting a calcareous saturation of the organism. The hyposulphite of lime, associated with the phosphate of iron, is indicated when complications of the phenomena of dysmenorrhœa, chlorosis and general weakness, are met with.

ON CATARRH OF THE SMALL INTESTINE IN CHILDREN. BY DR. ALOIS MONTI, OF VIENNA.*

Catarrh of the small intestine is one of the most frequent diseases of childhood. In the children's department under my care in the general polyclinic of Vienna, I have had 208 cases of this malady during 1872 and 1873. Of these, 117 were males and 91 females.

Intestinal catarrh mostly affects children during the first two years of life; although it may occur beyond that age. The majority of cases (105) occurred within the first year; there were sixty-one cases between the ages of one and two years; and twenty-six at the age of two; beyond this age, the number in each year rapidly diminished.†

The explanation of this lies, in the first year, chiefly in the special character of the food (milk), and between the ages of one and two years both in the change of food and in the simultaneous gradual development of the intestinal tract (stronger development of the intestinal glands and muscles, etc.)

The greater proportion of cases (106) occurred during the summer months, from June to September.‡

Among the causes of catarrh of the small intestine, artificial feeding plays the principal part. Of the 208 cases, in 160 the disease could only be attributed to this cause. It would be tedious to enter into all the particulars in this respect. Suffice it to say that the younger the children were, the greater was the number of cases due to artificial feeding, and, I might add, the more rapidly did its mischievous influence show itself. Intestinal catarrh came under observation as a result of all possible methods of artificial feeding, good and bad; and the more the food differed from the natural nourishment, the more frequently intestinal catarrh and its results appeared. Among the most injurious forms of artificial food were, bad cow's milk; milk excessively diluted or with too great an addition of sugar, or with the addition of articles difficult of digestion, such as rice-water, fennel-water, Indian corn, etc.; the administra-

tion of amylaceous food at too early a period or in too great quantity; and the excessive dilution of condensed milk. Even with the use of Liebig's soup, or its substitutes (Löflund's food for children, etc.), diarrhœa frequently occurred, but much more rarely than under the conditions just mentioned. The same remark is applicable to Nestle's food. The feeding of children with meat-broths must also be mentioned here as capable of producing diarrhœa, if such food be given to children when too young, or if they be fed exclusively on it. Meat also, given to children too early, or in improper form and quantity, leads to intestinal catarrh.

In children fed by breast, the disease is not so frequent as in artificially fed children; of the 208 cases, only twenty-one occurred in breast-fed infants. Among these, the overfeeding of the children, through the too frequent application of the breast and immoderate suckling, was the most frequent cause of intestinal catarrh. Here also must be mentioned a condition of milk not suitable to the age of the child, a too diluted or imperfectly digestible milk, especially in wet-nurses, the time of whose confinement differs too much from that of the birth of the children entrusted to them. As a general rule, all causes capable of producing dyspepsia may, if continued long enough, lead to diarrhœa. In some cases, I found that the suckling of the child beyond the normal period of nine months must be reckoned among the causes of intestinal catarrh.

That children fed on a mixed diet of human milk and other food, such as milk, coffee, starches, broth, meat, etc., very frequently suffer from diarrhœa, is a well-known fact.

In ten cases, weaning was to be regarded as the cause of intestinal catarrh; generally it was too sudden, while in other cases it was too early. After weaning, the choice of food is of great importance; and a sudden transition from fluid and homogeneous food, such as mother's or nurse's milk, to a more consistent food, very often proves injurious.

Besides the above-mentioned causes, an important part is frequently played by errors in diet, either through too abundant feeding, or through the use of articles of food not suited to the age of the child.

In not a single case could I attribute the intestinal catarrh to cold; nor was I able to connect its occurrence with the process of dentition.

The frequent occurrence of chronic intestinal catarrh in rickety children is remarkable; of the 208 cases, 44 belonged to this category. This supports Löschner's view, that rickets is to be regarded as a result of chronic intestinal catarrh. The occurrence of catarrh of the small intestine was also often observed in children suffering from chronic skin-diseases, such as eczema, prurigo, pemphigus, etc. Scrofulous children, whether the lymphatic glands be principally diseased, or whether they have periostitis, ostitis, or chronic disease of the joints, are, according to my experience, very frequently affected with intestinal catarrh.

Symptoms.—The most important symptom is the diarrhœa; for it affords very valuable and characteristic diagnostic indications. Defecation is preceded by premonitory signs, especially intense colicky pains. Small children become restless before each stool; they begin to cry very violently, and for a long time; they draw up the thigh on the belly, urge constantly, and refuse all food. The attacks of colic last for a longer or shorter time, and

* From the author's 'Pædiatric Contributions,' about to be published, *Wiener Medizinische Wochenschrift*, nos. 1 et seq., 1875.

† The following were the numbers at the various ages. Under 1 month, 5 cases; 1 month old, 7; 2 months, 9; 3 months, 21; 4 months, 9; 5 months, 7; 6 months, 15; 7 months, 4; 8 months, 5; 9 months, 7; 10 months, 5; 11 months, 3; 12 months, 8; 13 months, 5; 14 months, 8; 15 months, 15; 16 months, 6; 17 months, 10; 18 months, 5; 19 months, 6; 20 months, 3; 21 months, 3; 2 years, 26; 3 years, 5; 4 years, 2; 5 years, 3; 6 years, 2; 7 years, 2; 9 years, 1; 12 years, 1.

‡ The distribution of the 208 cases in the several months was as follows:—January, 5; February, 1; March, 9; April, 24; May, 11; June, 15; July, 30; August, 41; September, 20; October 17; November, 17; December, 18.

pass off after defæcation. The stools are more or less frequent, according to the intensity of the disease; and a characteristic of them is, that the single defæcations are very abundant in quantity. The defæcation is accompanied with a discharge of gases, and is attended with noise, as the contents of the intestine are expelled as from a clyster-pipe. The consistence of the stools is much diminished; according to the intensity of the process they are soft, thickly fluid, or as thin as water. The colour of the dejecta are always changed; in children, under one year, they have a pale, yellowish, or even greenish colour; their smell is sour or fæcal; in slighter cases the reaction is feebly or strongly acid, in the more severe forms of the disease it is neutral. A characteristic phenomenon was found to be the predominance of the watery over the solid constituents; and the more intense the disease was, the greater was the increase in the proportion of water.

In cases where the intestinal catarrh developed itself from dyspepsia, detritus of milk was found at the beginning of the disease; the stools contained flocks of casein in a perfectly undigested state. In cases where the intestinal catarrh set in independently, or on the further progress of the disease, the *débris* of milk increased in proportion with the severity of the malady. Mucus was present only in small quantity. In children more than one year old, the discharges were of a greyish, white, brown or green colour, and had an intensely fæcal odour. They consisted of remains of food, with water as their chief constituent.

Another characteristic symptom which I have observed is meteorism. According to the intensity of the disease, the abdomen was more or less distended; and it remained distended in spite of the frequent defæcation; touching it frequently produced pain or gave rise to gurgling sounds.

Another characteristic sign is, that catarrh of the small intestine in children under one year frequently commences, and even passes through its course, without fever. When fever set in in the course of the cases which I observed, it was always due to some complication, such as catarrh of the large intestine, bronchitis, pneumonia, etc. In children, however, who had passed their first year, and also in cases where the catarrh of the small intestine had arisen from errors in diet, or from acute gastric catarrh, fever was sometimes present at the commencement of the malady.

Besides these characteristic phenomena, I also found a series of symptoms which may be observed in other diseases of the intestines. They were the following. Thirst was more or less severe, according to the intensity of the disease. Diminution of the urinary secretion increased with the severity of the malady. In cases of profuse intestinal discharge, there was frequently a reduction of strength; the fontanelles became less tense, and in very severe cases were depressed; the bones of the head were pressed together, and, according to the degree of collapse there was diminished production of heat on the surface; the point of the nose, the upper and lower limbs, became cold; the eyes were sunken, etc. The acid nature of the stools frequently gave rise to erythema, and even to excoriations on the inner surface of the thighs, on the buttocks, and on the genitalia. The frequent occurrence of colicky pains frequently led to the formation of umbilical and inguinal hernia, especially in the chronic forms of the disease. In several cases there were also symptoms of dyspepsia;

of these I shall have to speak further on, under the head of complications.

The course of the disease was in most cases (119) acute; in the remainder (89) chronic. An acute course was frequently observed in children fed at the breast, and in weaned children; also in artificially fed children under three months of age.

The acute cases terminated:

1. In recovery. This result occurred chiefly in children fed by the breast, or in artificially fed children when a natural diet, or at least one resembling it, was given to them. Recovery was attended with the following phenomena. There was first a rapid diminution of the pain and meteorism, with decrease of the thirst and increase of the urinary secretion; then a decrease in the frequency of the stools, which gradually became less in quantity. The diminution of the watery contents and the increase of colouring matter were further indications of commencing recovery. When the stools had regained their normal colour and consistence, recovery might be considered complete. With these phenomena, the nutrition of the child, which was at a standstill during the acute intestinal catarrh, generally increases rapidly. The duration of the disease varied between a few days and two or three weeks. During the course of the acute intestinal catarrh, nutrition was at a standstill in the milder cases, while in the more severe ones emaciation was observed.

2. In catarrh of the large intestine (enteritis). This result was met with especially in those cases where the intestinal catarrh had been neglected at first, or where an unsuitable diet was given after weaning. It occurred most frequently in children between one and two years old; in these, the symptoms of enteritis received a peculiar stamp from the continuance of the catarrh of the small intestines. In several cases this result was attended with fever, either continued or presenting afternoon exacerbations. In another series of cases, the complication now under notice took place without fever. Another symptom which indicates the advent of enteritis, is the sudden decrease of the meteorism and the colic. The stools now occasionally change; sometimes they have the same appearance as in the commencement of the disease, while in other cases they present the characteristic peculiarities of enteritic discharges; they are frequent but scanty; the amount of water is diminished, and they contain a large quantity of mucus. The occurrence of enteritis always indicates a long duration of the illness; it has a tendency to become chronic.

3. The transition to *cholera nostras* was observed chiefly in artificially fed or recently weaned children; and it occurred the more frequently as the result of artificial feeding, the younger the children were. The cholera commences with violent vomiting, and with very frequent, abundant, quite watery, and nearly colourless stools. The abdomen, from having been distended, becomes soft; the colicky pains disappear; and distinct squashing can often be felt on palpation over the abdomen. Along with these symptoms collapse sets in; the fontanelles become depressed, the bones of the head are compressed together, the eyes are weaker, etc. This result of intestinal catarrh is very rare in children above one year old; and I have observed it only after the use of much unripe fruit or of tainted meat.

(To be continued.)

ANATOMY AND PHYSIOLOGY.

ZWEIFEL ON THE DIGESTIVE APPARATUS OF NEWLY BORN CHILDREN.—Zweifel, in a series of researches 'On the Digestive Apparatus of Newly born Children,' (pamphlet, Berlin, 1874, pp. 47, abstract in *Centralblatt für die Medicin. Wissenschaften*, no. 59, 1874), carefully investigated the bodies of newly born children, or those a few weeks old.

Salivary Glands.—Parotid and submaxillary glands were extracted, either simply with water or after Von Wittich's method. The parotid extract always changed starch rapidly into sugar, as was proved by Trommer's and the fermentation tests, and by the polariscope. All experiments with extract of the submaxillary glands on the contrary gave only negative results—a very striking phenomenon in relation to the condition of these glands in the adult. The ordinary diseases of children (diarrhoea, vomiting, etc.) produced no essential change, only the fermentative action was less and slower. On the contrary, this action appears to be absent during the foetal period till near its termination.

Stomach.—The whole organ was finely chopped up, and extracted with water, and hydrochloric acid added to the filtrate to the extent of one per 1,000; in many cases also the glycerine extract of the stomach was used. As the test, well-washed fibrin and casein as free from fat as possible were employed. In all cases there was a tolerably large production of peptones, not far behind that produced by an adult stomach which was used as a control. On the contrary, in a foetus of six months, the results were negative. Casein proved specially digestible.

Pancreas.—The diastatic ferment is absent from an infusion of this gland up to the end of the first month of life, as shown by Korowin and corroborated by the author. It, however, possesses the property of converting albuminous bodies (casein and fibrin) into peptones, and of splitting up neutral fats. In two cases of diarrhoea, it had also lost this property.

Glycogen was detected by Brücke's method in the liver of a four months' foetus, which was examined a few minutes after the heart had ceased to beat.

Biliary Matters (colouring matter and acids) were found in the intestinal canal of a three months' foetus.

VON WITTICH ON THE LYMPHATICS OF THE LIVER.—Von Wittich (*Centralblatt für die Medicinischen Wissenschaften*, no. 58, 1874), like Sikorski, has been able in the living rabbit to inject from the trachea an exceedingly irregular but narrow-meshed network lying partly in the pleura, partly in the subpleural tissue, and partly in the interstitial pulmonary tissue, and accompanying the blood-vessels; the author regards this network as consisting of lymphatics. In the freshly killed animal, he succeeded in injecting not only this network, but also the intercostal spaces, and even the external thoracic muscles when artificial respiration was performed.

If a rabbit be killed by bleeding, and, whilst artificial movement of the thorax is kept up, there be injected into the trachea, under moderate pressure, a concentrated solution of sulphindigotate of soda, one is struck with the quantity of fluid employed, and with the fact that the whole animal becomes of an intensely blue colour. The skin, the coverings of the eye, the tendons, the muscles, and the abdominal

viscera, all become more or less blue, just as by injection into the blood. In only two places has Von Wittich been able to follow exactly the blue-coloured channels, viz. in the choroid and in the liver. In both organs the blood-vessels were almost completely empty, or only partially filled with blood. The blue colour of the choroid arises from a blue layer lying around the vessels (Morano's lymph-sheath of the choroidal vessels); in the liver, a fine injected network surrounds the portal vein and the branches of the hepatic vein, from which exceedingly fine, delicate, blue injected processes penetrate into the hepatic lobules between the blood-capillaries and the hepatic cells. Strongly injected vessels, evident to the naked eye, pass from the hilus, run parallel to the large vessels and the bile-ducts, and surround these, their finer branches passing towards the branches of the portal vein, but the author observed no direct communication between these and the perivascular network. These vessels are not to be confounded with the blood- or bile-capillaries, and Von Wittich can only recognise them as lymph-capillaries. Further particulars as to the method employed are promised.

THOMA ON THE CEMENT-SUBSTANCE OF EPITHELIUM.—R. Thoma (*Centralblatt für die Medicin. Wissenschaften*, no. 2, 1875), in studying the physiological and pathological changes in the epithelium of the frog's tongue, discovered a method by which in the living animal an excretion of indigo in the cement-substance of the above organ, as well as in certain parts of the alveolar mucous membranes, could be produced. This cement-substance appears as a fine deep-blue coloured network, stretching regularly over the whole tongue, between the colourless epithelial cells, and lying somewhat below the level of the free epithelial surface.

The method is the following. A solution of pure sulphindigotate of soda is prepared by diluting, with an equal volume of distilled water, a saturated and filtered watery solution of indigo. This is injected, under a constant pressure, into the median abdominal vein of a frog, so that in the course of two to four hours, from four to six cubic millimetres of the indigo solution are introduced into the body of a medium-sized *Rana temporaria* or *esculenta*. Simultaneously the tongue is irrigated by a 1.5 per cent. solution of chloride of sodium, in consequence of which pronounced widening of the vessels occurs, specially in the arteries, together with great acceleration in the blood-current (LONDON MEDICAL RECORD, Dec. 30, 1874). The microscope shows that the blood is coloured slightly blue. After a short time the connective tissue becomes blue, whilst the muscular fibres and epithelium show no obvious coloration. It is only after two or three hours that the cement-substance shows a deep-blue coloration.

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PATHOLOGY.

BIROT ON PATHOLOGICAL ALBUMENS.—M. Béchamp has shown that there are several distinct kinds of physiological albumens. To separate them, he used a method based on the facts that some of them are precipitated by extract of lead, others by ammoniacal extract of lead, and that among the latter are some which remain soluble in

water after they have been precipitated by alcohol from their solution. To characterise them, he determined their rotatory power, their point of coagulation, and their function.

M. Birot has recently studied pathological albumens in the same way, in M. Béchamp's laboratory (*Comptes Rendus*, December 21). These, like the physiological, are divisible into two groups; the first group containing matters for which the name of albumens may be reserved. They are without action on starch, and become insoluble in water after they have been precipitated by alcohol. They are subdivided into (1) those which are precipitated by extract of lead, and (2) those precipitated by ammoniacal extract of lead. The second group contains albuminoid matters, to which, from their special action on starch, and their function of soluble ferment, M. Béchamp gives the name of zymases. They remain soluble in water after precipitation by alcohol. They are distinguished by the intensity of their action, and by their rotatory power. Liquids from pleuritic effusions, ascites, hydrocele, cysts, etc., have generally yielded the albumens of the two sub-groups and a zymase. The albuminoid matters isolated were essentially distinct also in most of their physical characters, in their points of coagulation, and in the aspect of their plumbic combination. M. Birot gives a number of figures relating to these characters, and they differ so considerably as to justify the view that the albumens obtained are definite compounds.

Comparing his results with those got by M. Béchamp in the case of blood, he concludes that his albumens are different. Thus no albumen isolated by him (M. Birot) had the rotatory power of the albumen of blood which M. Béchamp isolated; and, while the zymase of blood exists only in small quantity, and fluidifies starch very slowly without saccharifying it, pathological zymases are much more abundant, and sometimes saccharify starch quickly.

In view of the difference between albumens of pathological liquids and those of the blood, M. Birot considers that, even in mechanical effusions, the albumens of the serum are altered as they transude. The tissues, indeed, are living and active, and cannot be compared to inert filters. They themselves secrete albumens, or modify those passing through them. These different actions depend both on the proper nature of the tissue and on the influence to which it is subject; it is thus that the pleura does not transform albumens of serum as the peritoneum does. The albumens also are different in the pathological liquids secreted by the same individual, if the analysis be made at an interval of a few days.

M. Birot insists on the constant presence of a zymase. Before M. Béchamp, these substances were not distinguished from other albuminoid matters in the system, so that certain authors attributed to all albumens a property (that of saccharifying fecula), which is special to zymases. No zymase from a pathological liquid was capable of transforming cane-sugar into glucose.

In analysis of albuminous liquids, especially urine, it is necessary to take account of the zymases; the increase of nepozymase in this liquid may be such (the author has found), that it constitutes a veritable albuminuria, which might be called zymasuria.

All the ordinary methods (M. Birot says) of deter-

mining albumens are faulty. The only accurate method is that suggested by M. Béchamp; it consists in precipitating one volume of the liquid by three volumes, at least, of alcohol at 90°. The precipitate is then analysed, to ascertain the presence of a zymase, and to give account of the mineral matters precipitated.

M. Birot makes some remarks on the buffy coat which often forms on albuminous liquids. This is quite comparable to fibrine. Under the microscope, it is resolved into a mass of microzymes; it is they that produce it. In fact, if the liquid of ascites, etc., be filtered several times so as to remove the microzymes which swim in it, the formation of a buffy coat is prevented; whereas the same liquid, unfiltered, gathers into a mass, and in the surrounding liquid there are no longer any microzymes. If the buff be brought into contact with creasotised starch, this is rapidly fluidified, and a true fermentation takes place; the buff is dissociated in this medium. The microzymes are evolved, and transformed into chaplets of granules, into bacteria and bacteridia.

Albuminoid matters are, of themselves, inalterable, when they are pure; that is, when they do not contain organisms capable of living on them and so transforming them.

MEDICINE.

BALFOUR ON THE TREATMENT OF AORTIC REGURGITATION.—The *Edinburgh Medical Journal* for February contains an instructive paper on incompetence of the aortic valves by Dr. G. W. Balfour, physician to the Royal Infirmary. The following is an abstract of some of his remarks on treatment.

In the treatment of a patient suffering from the effects of incompetence of the aortic valves, the first remedy is rest in bed, and in the recumbent position. If orthopnoea be present, it may be safely and advantageously overcome by the use of chloroform, chloral, or morphia, even though there be some amount of oedema or congestion of the lungs; for in the horizontal position the weight of the column of blood which acts on the interior of the ventricle through the imperfect valves is reduced to a minimum; the heart is thus enabled to act more freely, and the pulmonary congestion is soon relieved.

Referring to digitalis, Dr. Balfour says that it is still regarded by many as being not merely useless, but positively dangerous, in cases of aortic regurgitation; yet in his opinion there is no other disease in which this drug is of more value, or in which its curative action can be more efficiently demonstrated. The useful employment of digitalis in aortic incompetence is merely a question of dosage; and in a few years we shall be able to regulate it with much greater nicety than at present. What we desire to produce in each case, is just such an amount of tonic contraction of the ventricle as shall rather more than counterbalance the dilating power of the arterial column. Dr. Balfour prefers the tincture to the infusion, as being more uniform in strength; he orders in ordinary cases from five to ten minims of the tincture every four hours, but he has occasionally given from fifteen to thirty minims every four hours, with great advantage to the patient: with these large doses, however, the pulse must be carefully watched, and if it begin to thump or to falter, or if the

patient complain of nausea on movement, the remedy must be discontinued. With care in thus adapting the dose to the circumstances and idiosyncrasy of the patient, Dr. Balfour has never found digitalis productive of anything but relief, and a relief unattainable by any other means known to him.

J. W. LANGMORE, M.D.

SURGERY.

TILLMANN'S ON DISLOCATIONS AT THE WRIST JOINT.—Dr. Tillmans, of Leipsic, having had his attention directed by Professor Thiersch to a case of old compound dislocation of the lower extremity of the ulna, which required amputation in the fore-arm, was induced to study the literature of this lesion, and to collect from such clinical records as were accessible as many cases as could be found. He has also included in his contribution (*Statische Beiträge zur Lehre von den Luxationen*) collected and tabulated cases of dislocations of the radio-carpal and the carpo-carpal joints, and of single carpal bones.

According to Goyrand, subluxation of the lower extremity of the ulna over the triangular cartilage occurs not unfrequently in children, in consequence of forcible traction on a pronated hand, as in lifting up a child by the hand, or lifting it up by a tug when it is on the point of falling through a false step. The following are the symptoms of this supposed lesion. At the moment when the little patient is pulled or raised by the hand, the person thus acting experiences a grating sound at the held wrist; the child screams, and the fore-arm falls suddenly as if paralysed; the hand is fixed in the pronate position and remains useless. This form of dislocation seems to occur almost exclusively in children. According to Goyrand, it cannot well be confounded with dislocation of the lower end of the ulna backwards, since in the latter lesion the capitulum is very prominent on the dorsum of the hand, the transverse measurement of the wrist is diminished, and the antero-posterior measurement considerably increased. The views of Goyrand as to subluxation of the lower extremity of the ulna have not been favourably received by German surgeons, and the symptoms sometimes produced by violent tugging at a child's hand have been regarded as indicative of injury to the elbow, not the wrist. Tillmans, however, seems disposed to accept Goyrand's statements as to the existence and occasional occurrence of such a form of dislocation of the ulna, and holds that, on account of their support from sure anatomical facts, they deserve more attention than they have hitherto received.

Of complete dislocation at the radio-ulnar joint Tillmans has collected fifty cases, in two of which, however, the displacement was not strictly of traumatic origin. In sixteen of the forty-eight traumatic cases the ulna was dislocated forwards, in eighteen cases backwards, and in nine cases inwards. In the remaining five cases, no mention was made as to the direction of the displacement. Of the sixteen volar or forward dislocations, twelve were simple and four complicated, the complications being, in one case, perforation of the integument; and, in the other three cases, fracture near the lower extremity of the radius with much displacement of the distal fragments. Of the eighteen dorsal or backward

dislocations, ten were simple and eight complicated; in five of the complicated cases the integument was perforated, and in the remaining three cases the radius was fractured. Of the nine inward dislocations of the ulna, eight were complicated; the complications being penetration of the skin alone, fracture of the radius alone, or a combination of these two lesions. From this collection of cases, it appears that the most common form of dislocation at the inferior radio-ulnar articulation is that in which the end of the ulna is displaced backwards with or without fracture of the radius. Tillmans points out that simple dislocation at this joint is not such a very rare lesion as it was supposed to have been by Malgaigne and Cooper. In twenty-three of the fifty cases, the dislocation was of this variety. The rarity of simple inward dislocation of the inferior extremity of the ulna, of which lesion but one case was found recorded, is explained by the fact that this displacement is generally converted by secondary movements into a dorsal or volar dislocation. In the single case of inward dislocation, the lesion was caused through forcible pronation; dislocation of the extremity of the ulna backwards is caused either by forcible pronation or direct violence; dislocation forwards by forcible supination, and also by direct violence. The usual method of reducing every form of radio-ulnar displacement is that of abducting the hand and applying direct pressure to the displaced end of the ulna. Extension was regarded by Malgaigne as not only unnecessary but irrational. In distinct dorsal dislocation supination, and in obstinate volar dislocation pronation, may often be made with advantage. In twenty-one cases (ten volar, eight dorsal, and three inward) there was perfect recovery and restoration of all the movements of the hand, although in seven of these cases the dislocation was compound. In three cases of compound dorsal dislocation, the hand was amputated; in four cases the protruded extremity of the ulna was resected, and in one case the extremities of both ulna and radius. Death followed in three out of the fifty cases, in one from tetanus, in another after gangrene, and in the third from exhaustion after amputation of the hand.

Dislocation of the hand was supposed to be a very frequent injury, until Dupuytren showed that the supposed signs of this lesion were really those of fracture at the lower part of the radius. This surgeon went so far as to assert that complete dislocation of the hand without fracture was impossible. Tillmans, however, found in twenty-four collected cases of traumatic dislocation, fourteen cases in which the hand had been completely displaced without fracture. In eight of these the dislocation of the hand was backwards, and in six forwards. Of the twenty-four cases, thirteen were cases of dorsal fracture, and eleven of volar fracture. Of the thirteen dorsal dislocations three were incomplete, one was complicated by perforation of the integument, and one by fracture of the styloid process of the ulna. Of the eleven volar dislocations, one was incomplete, one was complicated by wound of the integument, and three by fracture of the styloid process of the radius. In ten of the thirteen cases of dorsal dislocation, the hand was replaced by extension and with good results; in one case the lower extremity was resected, in another death was caused through other injuries, and in the thirteenth case purulent infiltration of the whole arm necessitated amputation at the shoulder-joint, which was fatal. Of the cases of

volar dislocation, two were fatal; in one amputation was performed, and in three reduction had not been effected. The more unfavourable prognosis of volar as compared with dorsal dislocation of the hand, is attributed by Tillmanns to the fact that greater violence is necessary to produce the former displacement, and that the soft parts are more extensively and more severely injured.

Traumatic dislocations of the first from the second row of carpal bones, and of single carpal bones, are very rare. Displacement of a single carpal bone is usually caused by direct violence; and, according to Von Pitha, is generally complicated with a lacerated wound. The carpal bones which are most frequently dislocated are the scaphoid, the os magnum, the trapezium, and the semilunar. Tillmanns discusses at some length the interesting injury of dislocation of the os magnum. This bone is always dislocated backwards, and always partially and not completely displaced; the capitulum of the bone only being separated from the articulating surfaces on the scaphoid and semilunar bones. The body of the os magnum is so firmly connected by strong ligaments to the trapezium, unciform, and middle and fourth metacarpal bones, and its articular surfaces are so closely applied to the corresponding articular surfaces of these bones, that an isolated dislocation of this bone forwards could not possibly take place. In consequence of the numerous and strong ligaments of the carpus, but very little, if any, movement can take place between any two applied carpal bones. The only important movement allowed in the carpus is that which takes place between the first and second rows of bones during flexion and extension, abduction and adduction. In movements of flexion and extension, the head of the os magnum moves on its transverse axis in the articular concavity formed for its reception by the scaphoid and semilunar bones; and when the hand is adducted or abducted, it twists around its sagittal or antero-posterior axis. From this allusion to the anatomical configuration of the carpus, it may at once be seen that the os magnum is relatively the most movable bone, and therefore can be most readily detached from the other bones. But this dislocation, when simple, cannot be complete, since the body of the os magnum is so well retained in its place by strong ligaments, and its articular surfaces are so well locked in those of the trapezoid on the one hand, and the unciform on the other. Tillmanns thinks that this incomplete dorsal dislocation of the os magnum is caused by forcible adduction whilst the first row of the carpal bones is fixed; but this view he is unable to support either by clinical observation or by anatomical demonstration.

W. JOHNSON SMITH.

SCHUMACHER ON CONTUSION OR FRACTURE OF THE NECK OF THE THIGH-BONE.—Dr. Schumacher has published the following case.

Joseph B., a well-known thief, was knocked against the door and thrown to the ground in a public-house scuffle. He complained of great pain in the right hip, and as he could not stand, he was removed to the barn, where he remained on the straw all night. He was next day carried home, where Surgeon H. saw him on September 17. He found swelling in the right groin and tenderness on pressure. The patient could take a few steps forward with the help of a stick, but had great pain in his right foot when he did so. Pending the official inquiry no further

examination was made. On September 18, the surgeon again saw his patient, and found him sitting on a bench. The patient could walk three or four steps with the help of a stick, but had great pain, and would allow no further examination of his powers of locomotion. Surgeon H. being otherwise much occupied, and fearing that in this case, as usual, the bone-setter at Laufen would be resorted to, discontinued his attendance.

On September 20, Surgeons H. and B. saw the patient and found the same swelling about the hip, and tenderness on pressure. The skin over the part was black and blue, and covered with the red plaster applied by Surgeon H. Every change in the position of the right thigh gave the patient great pain; and on rotating the limb, crepitation was plainly made out. There was no shortening of any moment. The patient could not stand on the foot of the affected side, nor could he take a few steps forward without very great pain. They diagnosed without hesitation a fracture of the neck of the right thigh-bone. Such an injury was an absolutely severe one, and would require at least six weeks for union; and an additional six weeks would be required before the patient could go about his vocation.

Joseph B. himself subsequently stated that eight days after the receipt of the injury he consulted the bone-setter at Laufen, who reduced (*einrichtete*) the joint; that he lay in bed six days, and that after that he could go about with a stick and could use the injured limb. He consequently doubted whether he had sustained a fracture at all. In three weeks from the date of the injury he was able to do light work about the house.

The following queries on the above case were put.

1. Were Surgeons H. and B. correct in diagnosing fracture of the neck of the thigh?
2. What are the effects and sequelæ of such an injury in favourable cases, and what duration of time is required for their recovery?
3. If there was no fracture of the neck of the thigh-bone, in what did the injury consist?
4. What misled the surgeons and induced them to diagnose fracture?
5. Referring to the statement of a certain G. W., who said he saw Joseph B. driving a waggon fifteen or sixteen days after he sustained the injury, should it be assumed that convalescence lasted at least twenty-six days after Joseph B. sustained the injury?
6. Was there a dislocation present? and if so, how long should such an injury incapacitate a man from following his employment?
7. In what manner was the injury caused?

Replies. 1 and 2. The surgeons were quite wrong in diagnosing fracture. The symptoms of fracture are external rotation, shortening, swelling at the hip, approximation of the trochanter to the groin, all which signs can be easily (though with pain) reduced, but reappear when the limb is let alone. Lastly, there is crepitation and absolute inability to move. Union takes two months. Now, only one of these signs—crepitation—was present, while the patient attempted to walk with a stick immediately after the injury, and fifteen or sixteen days afterwards was able to drive a waggon; and three weeks after the injury he could do light housework.

3. The swelling found by the three surgeons in the region of the hip, which involved the soft parts in the neighbourhood, indicated beyond question that the nature of the injury which Joseph B. sustained was a contusion of the joint and soft parts.

4. The fact that the diagnosis of the surgeons was determined by the presence of crepitation alone, and that they did not consider the absence of the mass of the symptoms of fracture indicates ignorance, or at least unfamiliarity with the subject. Besides, crepitation is often very difficult, and sometimes even impossible, of detection in muscles so well developed and in a man so strong as Joseph B. seems to have been.

5. After what has been said in reply to 3, it is evident that the contusion which was sustained by the patient was in and of itself a slight one, not affecting important parts, and followed by no constitutional disturbance, and that after it had for a short time seriously interfered with the movements of the right lower limb, it was remedied by the intervention of a bone-setter, without leaving any impediment behind it.

7. The contusion might have been caused by a blow, push, or fall upon a hard body, or even on hard ground.

If we reflect what are the symptoms of dislocation, it will be evident from their complete absence in this case that there was here no dislocation present.

[Would not a better and more complete explanation of this case be this? There was a contusion of the joint and a fracture of the expanded part of the innominate bone. If there were no fracture how can we account for the crepitus? Does the highly developed state of the muscles explain it? The utility of the bone-setter's treatment is easily explicable to anyone who has read the papers of Mr. Wharton Hood.—*Rep.*]

A. RABAGLIATI, M.D., Bradford.

MATERIA MEDICA AND THERAPEUTICS.

BUDIN AND COYNE ON THE STATE OF THE PUPIL IN THE ANÆSTHESIA OF CHLOROFORM AND CHLORAL, AND DURING THE EFFORTS OF VOMITING.—M.M. P. Budin and P. Coyne (*Gazette Médicale de Paris*, Feb. 8, 1875) believe the observation of the pupil very useful in giving chloroform, as a guide to the state of sensibility of the patient, especially in those cases where it is important to keep the patient perfectly quiet for a long time. Experiments made upon dogs confirm their previous observations upon the human subject.

They sum up their facts thus. 'When we employ more or less powerful stimulation to subjects submitted to the action of chloroform or chloral—

'1. If there be total anæsthesia, the pupil is contracted and immovable, and remains so.

'2. If the anæsthesia be incomplete, we see the pupil dilate under the influence of the various excitements to which we submit the patient, who then struggles and sometimes groans.

'3. If vomiting supervene, we see the pupil dilate under the influence of the efforts which the phenomenon necessitates, and more or less sensibility reappears at the same time.

'There exists, therefore, a relation between the absolute insensibility of the patient and the contraction with immobility of the pupil; between the

return of sensibility and the dilatation and mobility of the pupil.'

[Admitting that the state of the pupil affords an important indication to the chloroformist, the reporter would caution against giving more chloroform without feeling that the pulse is good, since dilatation of the pupil accompanies the failure of the heart's action produced by an excessive dose.—*Rep.*]

J. T. CLOVER.

WILL ON RHAMNUS FRANGULA, A SUBSTITUTE FOR CASTOR OIL.—Dr. Ogilvie Will, assistant-surgeon to the Royal Infirmary, Aberdeen, speaks highly (*Medical Times and Gazette*, Feb. 6), of the value of the bark of this shrub as an aperient. He uses a fluid extract, of which one fluid drachm is equal to a drachm of the bark; that cut in the spring from the branches should be used, not that taken from the thick trunk. The dose is a fluid drachm for a child or half an ounce for an adult. It greatly resembles castor-oil in its effect on the bowels, acting quickly but gently, and without griping, and its taste is by no means disagreeable. J. W. LANGMORE, M.D.

OTTO ON THE TREATMENT OF EPILEPSY BY BROMIDE OF POTASSIUM.—In the *Archiv für Psychiatric*, vol. v. no. 1, is a paper by Dr. Otto on potassic bromide as a remedy against epilepsy. He employed it in thirty-one undoubted epileptics, and his conclusion, after having well-studied the experience of others and the very extensive literature already existing on the subject, is that 'it lowers the excitability of the central ganglia and of the peripheral nerves, and by this means assuages immediately the epileptic attacks.' The results are due entirely to the bromine compound. Sodid bromide acted just as the potassic salt, but potassic chloride had absolutely no action. As to the dose, the smallest for adults, to have any pretensions to result, must be 120 grains, the largest 180 grains; in some cases 225 have been borne, but when it reaches 180 grains daily the greatest precaution is necessary. It is best to begin with full doses at once, and not rise to them gradually. In more than half the cases there was complete remission of the fits, in a small number lessening of them, and not in a single instance was the remedy without some effect, whilst the psychic state was equally improved.

Of the other remedies for epilepsy, atropin has been most vaunted, and that it has an influence on the fits cannot be denied, but the influence is never more than temporary. After the remedy had been employed for months, the fits still continued under its use even increased in number and severity. Tincture of digitalis is attended with small advantages; in many cases no good results followed, in some others the attacks were diminished, but in nothing near the proportion of those treated with potassic bromide; when the digitalis was employed subcutaneously, the attacks increased to two or three times their usual number. Nitrate of silver was useless in chronic cases. Nitrite of amyl, theoretically recommended, cannot approach potassic bromide, and is very uncertain in its action even when applied as soon as an aura gives notice of an approaching fit. Some one has maintained that good results from treatment were only to be found in idiopathic epilepsy where the disease was free from alteration of tissue or pathological products. Otto's cases show, however, that such an opinion is incorrect; for, since Meynert called attention to the changes in the cornu Ammonis in the brains of epileptics,

every epileptic subject in the Pforzheim Asylum has been examined in this particular, with the result that in nearly all cases one or both of the cornua Ammonis were found to be affected, and yet in them the bromide salt had been most effectual. Under excessive doses, in some persons psychic and motor paralytic symptoms may follow, but there are symptoms of intoxication and indications for lessening of the dose, and these brain-symptoms afford just as good a guide as does the pulse in digitalis. So little fear has Dr. Otto of any permanent psychic lesion from large doses of potassic bromide, that he affirms that he has often found the intellect improve and has been able to restore to society epileptics who seemed demented. In addition to the often noticed eruption of acne in those taking this medicine, there appeared at times circular inflammations of the size of a nut, of a furunculoid character and tardy course. Occasionally (12 per cent. of Otto's cases) an extensive ulceration of the skin appeared, superficial, situated in the leg or arm, and lasting whilst the medicine was continued. In other cases there were redness of the throat, burning at the stomach, diarrhoea, and pains in the limbs, but all these were transitory, and disappeared when the dose was diminished, or when more care was taken in the mode of administration. The remedy should always be given well diluted with water.

T. C. SHAW, M.D.

RECENT PAPERS.

Antagonism between Atropine and Jaborandi. By M. Vulpian. (*Gazette Hebdomadaire*, February 5.)
On the Use of Sulphate of Carbon in the Treatment of Atonic Wounds and Chronic Ulcerations. By M. Paul Guillaumet. (*Journal de Thérapeutique*, February 10.)

OBSTETRICS AND GYNÆCOLOGY.

O'MALLEY ON A CYST OF SPLEEN MISTAKEN FOR OVARIAN TUMOUR.—Dr. J. P. O'Malley relates in the Proceedings of the Luzerne County Medical Society (*American Journal of Medical Sciences*) the case of Mrs. A., a native of Wales, aged twenty-five, who had been married eight years, and had had six children and two miscarriages. The last child was born in October, 1872; before its birth she thought there would be twins, as she felt two heads, and a few days after her confinement she felt a hard movable tumour about the size of an orange in her left side. It continued to grow till February, 1873, when she consulted Dr. O'Malley. He found a tumour occupying the left umbilical and lumbar regions, of oblong shape and eight inches long by four broad, and extending about two inches over the median line, with its upper border corresponding to the lower border of the ribs. It could be easily moved either upwards or downwards, but the latter movement gave the patient pain with a sense of traction. It could also be moved over to the right side of the abdomen. Moving the tumour did not move the uterus. There was dullness over the tumour, but no fluctuation; the rest of the abdomen was resonant. The urine was loaded with urates and phosphates, but contained no albumen. The patient had not menstruated for six weeks, and had morning sickness. Dr. O'Malley diagnosed either floating kidney or ovarian tumour with long pedicle. He sent her to Dr. W. L. Atlee, who would not give a positive

diagnosis, but thought it was either 'a dermoid fibroid or multilocular ovarian tumour.' He accounted for the sense of traction on downward movement by adherent omentum. The patient, after her return home, suffered from occasional uterine pains until April when she miscarried. Occasionally, both before and after her last confinement, she had suffered from convulsions; and they returned with violence in May, the fits following one another rapidly, accompanied by much pain over the tumour in the intervals. The tumour was aspirated and a quart of fluid drawn off, 'having many of the characteristics of ovarian fluid;' it collapsed, and the convulsions ceased. During the next three months she was fairly well, but had slight convulsions every fortnight, and the tumour was twice again aspirated, and, though only four or five ounces of fluid were drawn off, temporary relief was afforded. On August 12 she had chills and high fever, with great pain and tenderness over the tumour, vomiting, and tympanitis. Operation was thought of, but deferred till the violence of the symptoms should subside. On August 20 she was better, but there was still pain over the tumour, and it was rapidly increasing in size. A consultation was held and operation decided on; but another violent and similar attack on the day fixed again deferred it, and the cyst ruptured into the abdominal cavity. Operation was again fixed on, but the patient sank and it was too late.

At the *post mortem* examination four hours after death, the tumour was found to be an enlarged spleen, with a cavity in it lined with pyogenic membrane and a recent point of rupture. It was adherent to everything in contact with it. The peritoneal cavity contained a considerable quantity of pus, but there was no general peritonitis. The uterus and both ovaries were healthy.

In conclusion, Dr. O'Malley asserts that this is an unique case, for, though floating spleens have been seen, they have never been cystic. In future, the possibility of a floating spleen with cyst must be taken into account in diagnosing abdominal tumours.

[This is a very interesting case, but Dr. O'Malley is mistaken in thinking it the only one on record. Péan removed a hypertrophied and cystic spleen and cured his patient, a young lady aged twenty, in September 1867. In this case also, the disease of the spleen had been mistaken for ovarian tumour.—*Rep.*]

WOOD AND OTHERS ON REMOVAL OF THE UTERUS.—Dr. Wood, of Cincinnati, reported four cases at a meeting of the St. Louis Medical Society on October 3, 1874 (*St. Louis Medical Journal*, December, 1874).

In the first case, the tumour was a fibroid, and was removed along with the uterus. The patient lived till the sixty-fourth day, and died of phthisis pulmonalis. *Post mortem* examination showed that the operation had been quite a success.

The second case was one of multiple fibroid of the uterus, growing behind that organ, which was pushed upwards and forwards. This patient recovered so as to get up, but died of rupture of intestine (which Dr. Wood considered as an accident apart from the operation) on the twenty-seventh day.

In the third case, the tumour weighed four pounds. The patient recovered without a bad symptom.

In the fourth case, the tumour was multiple and very vascular, and weighed six pounds. The pedicle

was secured by a strong silk ligature. The patient recovered.

Dr. Wood advocates leaving the ovaries, as he thinks the patients are then in better spirits and more capable of the enjoyments of married life.

In the reports of the same society for October 10, 1874 (*ibid.*), we have a report of a fifth case of Dr. Wood's, given by Dr. Hodgen. This was a case of interstitial fibroid, and the uterus and left ovary were removed. There were no adhesions. The tumour involved the entire body of the uterus, with the Fallopian tubes springing from its lateral parts. The vessels were secured on each side by silk ligatures, as they passed to the uterus, before the pedicle was divided, it being also transfixed and tied in two halves with a strong silk ligature. Some small vessels also required separate ligature in the cut edge of the broad ligament. The ligatures had one end cut short, the others being brought out at the lower angle of the wound. The intestines were allowed to fall down into the pelvis, but the omentum was folded over them in such a way as to protect them from forming adhesions to the stump of the pedicle.

Another report of this case is given by Dr. Porter, who states that pain in the abdomen, hiccup, etc., came on after the operation, and that the treatment was full doses of calomel, colocynth, and croton oil. The patient died in forty-three hours.

Dr. Edgar also remarks on this case, and doubts whether there were any symptoms urgent enough to warrant such a dangerous operation. He also questions whether it was not a fit case for enucleation, after dilating the cervix. The treatment by drastic purges so soon after such an operation, he also calls in question, and suggests that where obstruction is feared in these cases, it might be well to try to stimulate peristalsis by electricity. He also advocates peritoneal drainage.

Dr. Wood's five cases thus show three practical successes, a result which compares favourably with the statistics of Storer, Thomas, and others.

[The separate ligaturing of the vessels supplying the uterus before dividing the pedicle, and the arrangement to avoid adhesion of intestine to stump, are both points worthy of special notice in these cases.—*Rep.*] J. KNOWSLEY THORNTON.

AVELING ON NIDATION IN THE HUMAN FEMALE. — Dr. Aveling (*Obstetrical Journal*, July, 1874), proposes to give the name of nidation to the function of periodic growth and disintegration of the mucous membrane lining the interior of the uterus, from its supposed similarity to the nesting of birds. He endeavours to show that it is a function perfectly distinct from ovulation and menstruation. The membrane grows during the intermenstrual period, attaining considerable thickness in some parts before it is thrown off (denidation.) Its microscopical anatomy has been lately investigated by Dr. John Williams, in a paper read before the Royal Society. The exact period of life when it begins to grow has not yet been accurately determined, nor also its pathology and period of greatest activity. The latter would seem to be during the week preceding the menstrual epoch, as the uterus is during that period much enlarged and swollen. There is no nidation if ovulation have never occurred, but if the ovaries have been removed after ovulation has been established, the process still continues. An ovum need not necessarily reach the cavity of the uterus ;

for in extra-uterine pregnancy the nidal decidua is formed.

Nidation is the proper preparation of the uterus for the reception of the ovum; without that, the fecund ovum cannot be matured. The exact time when the uterus is in a most fit state for impregnation remains yet to be determined, but the tenacious fluid secreted by the cervical membrane in the week preceding menstruation would, the writer thinks, be an obstacle to the passage of the spermatozoa. Dr. Aveling considers that the uterus is more particularly prepared at this time than any other for this process.

During the latter days of nidation there is often observed a sympathetic hyperæmic condition of the breasts, the latter becoming tumid, painful, and secreting a thin milky fluid. When the process of denidation is complete, all this disappears. During lactation, nidation is thought by the author to be suspended, and re-established with the cessation of that function.

Denidation is compared to parturition: the nidal membrane having arrived at maturity is thrown off at times *en masse*, but generally in more or less minute portions; with the completion of this process menstruation ceases. Menstruation and denidation being usually contemporaneous phenomena, both are believed to have separate existences. But their relative importance widely differs, nidation being essential to impregnation, menstruation not.

Disorders of Nidation.—Pain occurring in a chronically hyperæmic uterus a week or ten days before menstruation, arises, in Dr. Aveling's opinion, from nidation, caused by the increased flux of blood necessary for the formation of the nidal decidua.

Hypernidation.—When the flow of blood is very great, the nidal decidua becomes formed into a tough sac, resisting the ordinary disintegration, at least so the writer thinks. Power believed it to depend on increased ovarian action. Another theory the author suggests, viz., that hypernidation may arise from a 'missed denidation,' so that, as it were, a double nidal decidua is expelled.

Subnidation may also happen from some exhausting disease, in the same way as amenorrhœa and retarded ovulation are known to occur from like causes. An impregnated ovum falling upon an improperly prepared nidal membrane would probably be absorbed.

Abortive Nidation doubtless exists, capable of being produced by chemical, mechanical, traumatic and physiological influences, but its pathology is unknown.

Disorders of Denidation.—Difficult denidation is better known by the name of membranous dysmenorrhœa; it is, really, painful expulsion of the hypertrophied nidal decidua which prevents the menstrual flow, through obstructing the internal os and cervical cavity, requiring true uterine contractions for its removal.

Treatment.—Depletion is mostly required at the latter days of nidation, operative measures during the earlier days. Stems and tents should be inserted early in the nidal period. [Leopoldt has shown that after the decidual membrane, or, as Dr. Aveling calls it, the nidal decidua is thrown off, the lymphatic spaces of the uterus are patulous, and the ready recipients of any septic matter that may be conveyed to the uterus. Tents, as it is well known, have not unfrequently given rise to septicæmia. The reporter is inclined, therefore, for these reasons, to differ from the writer as to the desirability of introducing tents immediately after denidation.—*Rep.*]

Gravidal Nidation.—With impregnation denida-

tion is retarded; the nidal membrane grows to a considerable thickness, being only expelled after delivery, when this action is effected with uterine pains simulating those of parturition.

Dr. Aveling believes denudation from a discontinuance of the reproductive nutrition to the fully matured fœtus to be the determining cause of labour.

[Judging from the analogy of ripe fruit, this conclusion does not seem improbable.—*Rch.*]

SCHMIDT ON COMPRESSION OF THE ABDOMINAL AORTA IN POST PARTUM HÆMORRHAGE.—The following remarks by Dr. Wolfgang Schmidt (*Erztliches Intelligenzblatt*, January 12, 1875) were occasioned by a case of *post partum* flooding that happened in the author's practice, where a woman, aged thirty-two, pregnant for the third time, was attacked with flooding coupled with retention of the placenta.

She bled until she became faint and perfectly blanched. The umbilical cord had been torn through by the midwife. An attempt to remove the placenta by Credé's method was unsuccessful, and brought on an attack of faintness. The abdominal walls being very flaccid, the pulsations of the aorta were easily recognisable. It struck Dr. Schmidt to apply compression to that vessel. The effect was that the pulsations of the aorta, which were previously small and frequent, became in a few minutes gradually fuller and slower; the faintness disappeared, and consciousness returned with singing noises in the ears; after a time even this symptom ceased. As soon as the compression was removed, all the former symptoms returned. Compression was again applied with the same result, the patient complaining only of tingling and numbness of the lower extremities, showing how effectual had been the pressure. The patient made a good recovery. Some authors placed compression and transfusion alongside of each other, and as Herr Schmidt thinks, properly so; as, although general increase in the quantity of the blood is not attained, yet in the vital organs such is obtained, in the foremost rank of which stands the brain. Besides, transfusion is not capable of easy or rapid application, and assistance, both instrumental and manual, is requisite; a not unimportant factor in country practice.

W. C. GRIGG, M.D.

OPHTHALMOLOGY AND OTOLOGY.

SCHNABEL ON THE DEVELOPMENT OF SHORT-SIGHT IN CONSEQUENCE OF OVERWORK OF THE EYES.—This paper, on the influence of fatigue of the ciliary muscles upon the development of myopia, was communicated to the Medical Society of Vienna (*Allgemeine Wiener Medizinische Zeitung*, October 27, 1874). It appears that there are at present two opposing theories as regards the formation of staphyloma posticum; the one holds that a congenital predisposition is essential to its development, and the other maintains that overwork on the part of the ciliary muscle is sufficient to produce it in any and in every kind of eye. The advocates of the latter theory assert that, in consequence of prolonged hard work, the ciliary muscle is seized with cramp and remains in a state of spasm; that hyperæmia and inflammation of the choroid are the result; and that these in

their turn lead to the atrophy of some portion of the optic disc, and to the formation of the well-known myopic crescent which precedes the elongation of the eyeballs. Dr. Schnabel considers this explanation to be in the highest degree improbable; for, instead of spasm being the outcome of fatigue of the ciliary muscles, he would expect a relaxation; and he asks why this state of spasmodic cramp should occur frequently in cases of myopia when the need of the accommodation is but lightly felt, rather than in hypermetropia in which the demands upon the accommodation are excessive and persistent. He adds that, amongst 210 cases of hypermetropia, he had not been able to find a single instance in which this spasm had occurred, a fact which convinces him that any such cramp or spasm cannot be the cause of the elongation of the eyeball. He allows that, amongst 105 eyes, Dobrowolski found sixty-nine in which there was spasm; that out of sixty-seven eyes, Hosch found forty-six so affected; and amongst 101 eyes, Schiess found fifty-one in which the myopia entirely or in part depended upon the cramp of the accommodation; but he believes that all of these observers have forgotten that a single instillation of atropine is sufficient to relax the accommodation and at the same time to diminish the refraction in any kind of eye; and that a prolonged rest of the ciliary muscle is always attended with a marked diminution in the refractive power; that hypermetropes do not suffer from this kind of cramp; and that, while occasionally the refraction appears to be higher than it really is, owing to some anomaly in the accommodative power, yet this is not sufficient to prove the existence of a distinct muscular spasm.

The existence of a crescent most certainly cannot be said to be due to the struggles of the ciliary muscle in a state of cramp, because most perfectly formed crescents may be seen in eyes in which the accommodation has never been in the least degree strained; neither can a myopic crescent owe its existence to a painful exercise of the accommodation, for under such circumstances it should be circular, and not, as it is, semilunar in shape; it should be deeper on the inner than on the outer side, and should have its narrowest diameter on the outer side, whereas, as everybody knows, the reverse is generally the case in all these particulars; and it should occur, as a rule, in hypermetropic eyes, and as the exception in eyes which are myopic.

In conclusion, Dr. Schnabel considers that there are two kinds of crescents. One is congenital and entirely unconnected with staphyloma posticum; it may be met with in eyes presenting every variety of refraction, and may be looked upon as the analogue of choroidal coloboma; in this variety, the nerve-fibre layer of the retina and the pigment-layer of the choroid are more or less deficient. The other is due to staphyloma posticum, in which the retina and the pigment-layer of choroidal epithelium become atrophied. Both the congenital crescent, as well as the acquired crescent, may involve the region of the yellow spot.

BOWATER J. VERNON.

RECENT PAPERS.

- Case of Congenital Absence of the Iris in both Eyes. By Dr. Reuling. (*American Journal of Medical Sciences*, January, 1875.)
Foreign Bodies in the External Auditory Meatus. (*Journal de Médecine*, February, 1875.)

REVIEWS.

The Breath, and the Diseases which give it a Fetid Odour; with Directions for Treatment. By JOSEPH W. HOME, M.D. Appleton & Co., New York. 1874.

In the preface to this handbook the author states : 'Marked changes in the breath have heretofore received little consideration from the profession. Our medical text-books contain scarcely an allusion to their existence. It is to supply this want in medical literature that the present book has been published.' If Dr. Home has really written for the medical profession, we doubt the want which he presumes his book will supply.

Most surgeons and physicians are acquainted with the characteristic odour of the breath that is found associated with mercurial salivation, syphilis, and phosphorus-necrosis, whilst the effect of diseased teeth as a cause of offensive breath has not hitherto been overlooked. We presume, however, that Dr. Home has not written for his professional brethren, but for the public, since he deems it necessary in the text to explain matters with which all competent physicians are fully acquainted. For the public, also, he has written (if they read the book) too much for their peace of mind to remain, and too little for them to receive any reliable instruction.

As most people at some part of their lives are likely to suffer either from excessive emotion, constipation, or indigestion, and all these conditions produce fetor of the breath, according to Dr. Home, we find instructions given for constitutional treatment by the patient himself (or herself as the case may be); whilst, in the absence of a dentist, they may dissolve the accumulations of tartar off the teeth by means of dilute acid. On the condition of the breath in health and disease, Dr. Home might have written a treatise of signal use to the public; but he has, in our opinion, only produced a work that will be likely to mislead those for whom it is clearly intended.

OAKLEY COLES.

MISCELLANY.

PROFESSORS RIZZOLI and Scarenzio and Dr. Ciniselli, have been nominated corresponding members of the Lombardian Institute of Science and Literature.

THE *Gazzetta delle Cliniche* announces the recent death of Dr. Carlo Burci, professor of Clinical Surgery in Florence, and senator of the kingdom of Italy.

CAUSES OF EXEMPTION FROM MILITARY SERVICE IN FRANCE.—The report lately distributed to the French Deputies gives some interesting particulars on the manner in which the new law on compulsory military service is working. It appears that 303,510 young men figured on the list, of which 30,433 were excused on the ground that they were suffering from diseases which rendered them unfit for service. The list of these diseases is curious from a physiological point of view. They are classed as follows:—Skin-diseases, 795; blindness, 120; loss of an eye, 1,325; squinting, 125; short sight, 527; various diseases of the eye, 1,879; deafness, 691; loss of teeth, 315; stuttering, 529; wens, 416; scrofula, 1,336; heart-disease, 735; consumption, 522; hernia, 1,942; loss of the use of an arm or leg, 1,883; mutilation of fingers, 1,038; varicose veins, 818.

PHOSPHORUS DISEASE.—In Mr. Salter's recently published work on *Dental Pathology and Surgery*, he devotes a chapter to phosphorus disease, a subject upon which he speaks with some authority. He alludes to the preventive measures which ought to be adopted. 'The prevention of phosphorus disease is so easily accomplished, that its occurrence is discreditable to the sanitary laws of any country where it occurs. If the employment of amorphous phosphorus were decreed, and the use of ordinary phosphorus prohibited by statute, the disease, in all probability, would cease to exist. But if this could not be enforced, the employment of ordinary phosphorus might be rendered almost innocuous.' Amongst other precautionary measures, he enjoins 'a periodic and rigid scrutiny of the mouths of all the workpeople employed.'

VACCINATION IN ROME.—Last month, the provincial Sanitary Council of Rome, finding that animal vaccination in Rome and in the entire province was unsuccessful, unanimously urged the Minister of the Interior to nominate one of its members as provisional conservator of vaccine for the commune of Rome. The minister, recognising the importance of the subject and the urgency for making some provision, seeing that the province was threatened with an epidemic of small-pox, has given notice to the Prefect of Rome that, in the official vaccinations in the province, animal lymph is to be abandoned, and humanised lymph used, as was formerly done. The *Gazzetta delle Cliniche*, while approving of this order, points out that it is also necessary to provide a system of preservation and cultivation of vaccine lymph, so as to insure a constant supply for the province under all circumstances.

DARK ROOMS MADE LIGHT.—Chappuis' Patent Reflectors are used to reflect the daylight, and do away with gas during the day time, thus saving expense and ministering to both health and comfort. They can be adapted wherever there is either window, skylight, fanlight, area, grating, or any communication with the outward daylight. These reflectors are made of crystal surfaces, corrugated or shaped according to scientific principles, and coated with deposits of pure silver, also of silver-plated metal, rendered water and air-tight and fitted in well-constructed frames of different shapes and sizes as required. Being fixed outside windows or under skylights, they reflect the daylight rays and diffuse them in all places or apartments where the natural light is insufficient, owing to the small size of windows or the proximity of walls, houses, etc. Mr. Chappuis' patents are patronised by H. M. Commissioners of Works, the Royal Engineers, the Admiralty, all leading architects, contractors, bankers, merchants, manufacturers, etc.; they are also in general use for private houses, institutions, etc., upwards of twenty thousand having been supplied since 1831. The reflectors may be seen in operation and prospectuses obtained at the manufactory, No. 69 Fleet Street.—[Adv't.]

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The London Medical Record.

WEDNESDAY, MARCH 3, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON CATARRH OF THE SMALL INTESTINE IN CHILDREN. BY DR. ALOIS MONTI, OF VIENNA.*

(Continued from page 115.)

Chronic catarrh of the small intestine is either developed from the acute form, or the catarrh assumes a slow course from the commencement. In this form, the stools are not so profuse and frequent as has been described at p. 115; from five to eight stools take place within twenty-four hours. Defecation is always preceded by colicky pains, and is attended with groaning and whining, or with rumbling of the bowels; the stool is principally watery, and contains a yellow crumbly mixture. Its consistence is thin or pappy; its colour yellow, yellow-green, or whitish. It also contains remains of undigested food. In spite of the diarrhoea, the meteorism continues; it usually increases during digestion, and sometimes colicky pains set in, but are not followed by faecal evacuations. The appetite is in many cases undisturbed; in others it is either diminished or quite lost.

The duration of chronic intestinal catarrh is very variable; it may last from four to six weeks, or even two or three months or more. The symptoms seldom remain of equal intensity through the whole course of the disease; sometimes improvement appears, or even recovery, for a few days, but after a short time, without apparent cause, a relapse occurs; and thus the patient's condition often changes several times in the course of the illness. Chronic catarrh of the small intestine exercises a very injurious influence on the nutrition of the child; usually, at the commencement of the illness, there is a standstill, while later on emaciation appears, and may reach the highest degree. In children thus affected, I have met with all degrees of emaciation, from slight diminution of the panniculus adiposus to complete atrophy of the muscles, as seen in the well-known miserable creatures with aged face, hollow cheeks, sunken eyes, and dry wrinkled skin. As soon as general nutrition becomes injured by chronic catarrh of the small intestine, the growth of the bones is generally arrested, and the phenomena of rachitis are developed, and reach a degree of intensity proportionate to the duration of the disease.

Recovery from chronic intestinal catarrh was observed in three cases in which the disturbance of nutrition had not reached the highest degree. But where the muscular structure was altogether wasted, and where the skin presented a dry appearance,

hæmorrhagic effusions, or œdematous swellings, recovery was very rare.

A frequent result of chronic intestinal catarrh is atrophy of the intestine.

The chronic form of catarrh of the small intestine was chiefly observed in children under one year, and in those which had been artificially fed.

Children affected with chronic intestinal catarrh frequently die of intercurrent complications.

Complications.—Among the complications met with, the following deserve notice.

1. *Dyspepsia.*—This complication was principally observed in children at the breast, in whom the intestinal catarrh was induced by too frequent and excessive feeding. It either preceded the development of the intestinal catarrh by a few days, or appeared at a later period in the course of the disease. In both cases, the symptoms of dyspepsia accompanied those of intestinal catarrh. In such cases, the presence of dyspepsia indicated a somewhat protracted illness, and the repeated violent attacks of colic were often very distressing and painful to the little patients.

2. *Gastric catarrh* occurred as a complication in eleven cases. One was a child four months old, artificially fed; the remaining ten were between one and two years old. I have observed this complication principally in those cases in which the intestinal catarrh was produced by error in diet, or by deficient food not suited to the child's age. As with dyspepsia, gastric catarrh sometimes preceded the intestinal catarrh; but in most cases the two appeared simultaneously. I have seen this complication only in acute cases of intestinal catarrh; in some cases the simultaneous occurrence of the stomach-disease produced rapid collapse, the patients presenting a choleraic appearance. The course of the complication was mostly of short duration, and ended in recovery.

3. *Diseases of the mouth* frequently occurred in the course of intestinal catarrh. In six cases there was thrush; in three, aphthous stomatitis; and in three, desquamation of the tongue. The thrush occurred only in the acute cases, while the aphthous stomatitis and desquamation of the tongue accompanied the chronic form of the disease. In two cases there was secondary diphtheritis of the mucous membrane of the lips.

4. *Œdema of the meninges* occurred in one case of chronic intestinal catarrh, and ended fatally.

5. *Bronchial catarrh* was observed as a complication in eleven cases, six of the acute form and five of the chronic. In two cases of chronic intestinal catarrh, the complication appeared in the form of acute capillary bronchitis, and ended in death. In the remaining nine cases, it occurred as a chronic bronchial catarrh.

6. *Lobular pneumonia* appeared in one case of chronic intestinal catarrh, in a child sixteen months old, and caused death.

7. *Indications of a high degree of scrofula* were observed in four cases of chronic intestinal catarrh.

8. *Eczema* was observed as a complication in nine cases, all of chronic intestinal catarrh.

9. *Prurigo and ecthyma* were each observed in one case.

10. *Cachectic pemphigus* occurred in the course of chronic intestinal catarrh in two children, aged four and eight weeks. Both died.

11. *Gangrene of the skin* appeared in one case of chronic intestinal catarrh in a child three months old, which had been artificially fed in a highly im-

* From the author's 'Pædiatric Contributions,' about to be published. *Wiener Medizinische Wochenschrift*, nos. 1 et seq., 1875.

proper manner, and in other respects badly managed. The intestinal catarrh had lasted eight weeks, and had produced extreme emaciation. Behind the right ear, the skin over the mastoid process and in the immediate neighbourhood was infiltrated and of a purple colour. The next day, the skin at this part was converted into a gangrenous eschar, which showed no limitation on any side. In spite of treatment, the gangrene spread over the temporal region and caused death.

In the material of a polyclinic, it is not possible to collect certain data as to the mortality caused by intestinal catarrh, as, notwithstanding all care in following up the cases, we cannot arrive at the knowledge of every death that occurs. I must, therefore, abstain from deriving any statistical results from my observations on this subject, and will only point out a few general facts regarding the mortality from this disease.

In the first place, the age of the child must be taken into consideration, for the younger it is, the more readily may an attack of acute or chronic intestinal catarrh end fatally. Further, the diet of the child is of great importance; when it is fed with human milk, the mortality is very small, while in artificially fed children it attains frightful dimensions. Finally, the complications of catarrh of the small intestine are, according to their nature, to be regarded as the proximate cause of death.

The *Treatment* of catarrh of the small intestine was, according to the nature of the case, dietetic and causal. Medicines were only given to meet symptoms, and with the object of assisting the action of the dietetic treatment. In each case of intestinal catarrh I have directed my whole care to the regulation of the diet, and I have to thank alone the rigorous and intelligent carrying out of this fundamental principle for many successful results. In the regulation of diet, I have especially borne in view the following points.

In the case of children at the breast suffering from internal catarrh attributable to too frequent or immoderate suckling, a rigorous order as to giving the breast was enforced. When a bad condition of the milk of the mother or nurse could be regarded as the cause of the disease, a change of nurse was tried. Unfortunately, through the poverty of the patients attending the polyclinic, this was impossible in most cases, and I was obliged to have recourse to substitutes for human milk, and to use them either exclusively or as a supplement to the breast. In this respect Liebig's soup, and Löflund's and Nestlé's children's food, have done good service in many cases of catarrh of the small intestine. When artificial food had been given along with the breast-milk, and intestinal catarrh had become developed in consequence, the food in question was withheld during the disease.

When intestinal catarrh appears after weaning, it is necessary to return to the breast-milk in cases where the symptoms of the disease come on impetuously, or where they have continued some time and no improvement is manifest, notwithstanding dietetic and medicinal treatment, especially in children under five months old and in summer time. If circumstances do not allow the child to be put to the breast, I try the best substitutes, such as veal broth with milk, Liebig's, Löflund's, or Nestlé's food, good fresh cow's milk, which may be given either pure or diluted, according to the age of the child, or finally, dencondensed milk. With these substitutes I have the children fed, and I have found it advantageous to

give fluid food alone and to avoid amylaceous diet. The entire withdrawal of milk after weaning may be tried for a single day; for a longer time, according to my experience, it is hurtful.

In artificially fed children under one year of age, the substitution of natural nourishment by breast-milk is the most efficient means of curing both acute and chronic intestinal catarrh. Here, also, as I have said elsewhere in speaking of dyspepsia, too many experiments should not be made with artificial food, and nourishment with breast-milk must be used when there is no improvement in the intestinal catarrh in spite of the use of the best substitutes for human milk, or when the nutrition is essentially interfered with. In the cases of the polyclinic, on account of their indigence, this object could be carried out in a few only.

In regulating the diet, I generally followed the principle of changing the food during the use of which the intestinal catarrh had set in, and replacing it by another which produces the least irritant effect on the intestinal canal, and approaches nearest to breast-milk in digestibility. In cases of intestinal catarrh in artificially fed children, many hold to the opinion that feeding with milk should be entirely stopped if the disease commenced under its use. Vogel alleges that no child with intestinal catarrh tolerates cow's milk, and therefore he recommends that mucilaginous drinks and soups be substituted for it. Quite recently, also, Demme has defended this opinion of Vogel, and asserts that the administration of milk in intestinal catarrh is to be rejected as improper. The latter, however, rejects not only fresh milk, but also condensed milk, as well as Liebig's soup and Nestlé's children's food; and advises that children suffering from intestinal catarrh be fed only with meat-broth or albumin-water. This is not the place to prove that assertions of this kind are perhaps based on insufficient experience; and I will merely remark, that in twelve years Demme has treated only seventy-one cases of intestinal catarrh. My experience of many years, in the children's hospital, as well as in the polyclinic and in private practice, does not confirm the assertion referred to above. In children above one year old, very good results may certainly be obtained by withholding milk for some days; but in infants under three months, I regard abstinence from milk as extremely injurious, and as the most frequent cause of rapid collapse and death.

It may be not without interest to remark here, that Demme mentions twenty-two fatal cases of intestinal catarrh in children of ages varying from a few weeks to two years, and that seventeen of the deaths took place in children of or under ten weeks old. This, perhaps, indirectly confirms the correctness of my assertion. It is especially to be regretted that Demme, in his yearly report, does not give any table of the ages of his cases of intestinal catarrh, from which the percentage of mortality might be calculated; for only with the help of such a table would it be possible to prove his opinion. The want of it is all the more to be lamented, as there is some reason for believing that most of the children died who, within the above-mentioned age, were treated by the total withdrawal of milk.

I have only brought forward these remarks, for the purpose of in some way explaining how it is that my experience stands in glaring contradiction to that of Vogel and Demme.

(To be continued.)

VANZETTI AND VERNEUIL ON THE ARREST OF HÆMORRHAGE FROM WOUNDS.

In a paper read before the Royal Venetian Institute of Science, Literature, and Art, and since published as a separate pamphlet,* Professor Vanzetti treats of the arrest of hæmorrhage. He signifies by the word 'uncipressione,' pressure made on a vessel, or vessels, laid open in a wound, by means of two sharp hooks plunged deeply into each side of the wound, and held asunder by means of a ligature attached to their handles and fixed either to a splint on which the wounded part rests, or otherwise, so that the lips of the wound may be kept dilated, and the bleeding vessel pressed upon by the tension of the hooks. He commences by calling attention to the great difficulty which is sometimes experienced in arresting hæmorrhage, in situations where (as in the palm of the hand) it is difficult to tie the wounded artery at once, and to the frequency with which in such cases consecutive aneurism occurs. He then goes on to speak of his new proposal as 'a surgical proceeding, so simple, so obvious, so easy, so natural, so common, I had almost said so vulgar, that I should doubt whether this were the place to speak seriously and formally about it, were it not that its effect may be sometimes decisive as to the life or death of the patient. It offers itself so spontaneously almost to the mind, even when an artery is to be tied, as to cause astonishment that it has not, so far as I know, been treated of by any one as yet with the deliberate end of using it to check hæmorrhage. To put it in practice, it is not necessary to attempt to bring the artery into view (for, if this can be done, it ought to be tied): no scalpels are wanted to make new incisions, no forceps, no tenacula, no ligatures, no bandages, no compresses, no plugs, no new instruments or inventions; and every surgeon, even the least experienced, called on however suddenly and unaided, can provide himself in a moment with what is wanted, whether in the mansion of the rich man, in the garret of the pauper, or in the hut of the peasant.'

The author goes on to relate three cases. The first was one of a deep wound in the palm of the hand, between the first and second metacarpal bones, treated by compression, with recurrent attacks of hæmorrhage during twenty-eight days, when the patient was brought to the hospital in a desperate state of anæmia. The wound was dilated, and an attempt made to find the bleeding vessel. This, however, was not very satisfactorily done. Two ligatures were placed on points from which the hæmorrhage seemed to issue, and for the time the bleeding was checked. Then the wound was kept dilated with double sharp hooks, fixed to the splint on which the hand rested. No further bleeding occurred till the second day, when it broke out in a large stream. The bleeding vessel could not be found, but the hæmorrhage ceased on fixing deeper and more securely one of the hooks which had become displaced. Again, on the same day, the bleeding recurred from the other side of the wound, and was again controlled by refixing the opposite hook. After this, no further hæmorrhage took place. The hooks were removed forty-eight hours after the last application, and all went well.

This case seemed to show that the bleeding had been checked, not by the ligatures, but by the hooks, which must have enclosed in their curve and compressed the two bleeding ends of the artery; still the fact that ligatures had been applied renders the case not perfectly convincing, and it might even have been argued (though this is highly improbable) that the bleeding ceased spontaneously on the mere enlargement of the wound.

The second case was that of a lad who, in cutting a piece of cheese, wounded his hand about the centre of the palm. He ran to the hospital, bleeding violently. On undoing the wrappings from his hand, it was seen that the wound was transverse, lying between the second and third metacarpal bones, only about two-fifths of an inch (one centimètre) in length and about the same in depth, and bleeding furiously whenever the brachial artery was not compressed. The hand was laid on an inclined plane, and two single sharp hooks were fixed deeply into it. The bleeding ceased, almost before the pair were fixed; in fact, it seemed as if traction on one of them arrested it. Next morning, the boy, not understanding why his hand should be hooked down in that way, gently withdrew the hooks, and no further bleeding took place.

The third case was that of a cabinet-maker, who had wounded the ulnar artery about two inches above the wrist, with a sharp knife. He had lost a large quantity of blood, and fainted frequently, before he was brought to the hospital. There the house-surgeon tried to find the wounded artery, but without success, and seems not to have enlarged the wound. However he repressed the hæmorrhage for a time by pad and bandage; but, just as Professor Vanzetti was visiting him next day, the bleeding recurred very copiously. The bandage was undone; a perfectly transverse wound, about half an inch long was seen, from which the blood burst out whenever compression of the brachial was intermitted. Professor Vanzetti thus describes the treatment. 'I at once insinuated two single hooks into the wound, and separated its edges in a very oblique direction, for the purpose of better embracing both ends of the wounded artery; but the attempt quite failed, so did a second which I made with the hooks drawn in a different direction, and with more force; so did a third, and, during the three intermissions of the pressure, a lake of blood had collected around the arm. I cannot say how much I felt my confidence in the hooks fail at these repeated failures, and how depressed and uneasy I felt—but it was only for an instant, for a double hook substituted for the single one at the upper edge of the wound stopped the bleeding at once, and permanently.' The hooks were secured to pieces of wood fixed on the sides of the bed. The upper hook could be seen pulsating with the movement of the artery which it embraced, and this pulsation was perceptible for about a day. The hooks were removed in forty-eight hours.

The paper concludes with minute directions for all the details of 'uncipression'; viz., the time of maintaining it—twenty-four, thirty, forty hours or more, according to the severity of the bleeding; the form of hooks, whether single or double, in a handle, or secured with a chain or elastic cord, like dissecting hooks; the direction of pressure; the mode of providing the fixed point for the hooks, as by splints; the bedstead, pieces of furniture beside the bed, etc. All this the surgeon can, however, easily contrive for himself. Finally, Professor Vanzetti suggests

* *Della Uncipressione*. Memoria del Prof. T. Vanzetti. Venezia, 1874.

that in lieu of the hooks some expanding instrument (similar, as he says, to the speculum oculi) could be used to keep the wound expanded and compressed by excentric pressure.

In reference to Professor Vanzetti's paper, M. Verneuil read to the Société de Chirurgie (*Gazette des Hôpitaux*, January 9, 1875), a memoir entitled on 'Forcipation,' giving examples of another mode of stopping hæmorrhage, of which, as he truly says, he is not the inventor, but which, he thinks, is not so much known as it should be. It consists merely in seizing the bleeding point with a pair of forceps, which are closed either by a spring of their own, or by a ligature tied round their blades, and left in the wound. [Probably few of our readers who have had much experience of operative surgery have not seen something of this kind either done or attempted with varying success.] M. Verneuil gives twelve examples of this practice in cases of very various kinds. He has generally used either a pair of forceps, similar to those called 'torsion-forceps' in this country, or a common pair of dressing-forceps. In all the instances here given, the bleeding was permanently commanded. They were (1) a case of section of the pedicle of an uterine polypus; (2) a wound of an artery in the palm; (3) a wound of the internal mammary artery in removing carious bone from the sternum; (4) a wound of the internal maxillary artery, in removing a tumour of the jaw; (5) a wound of the lateral sacral artery in operating on a case of caries of the sacrum; (6) bleeding from the base of a nasopharyngeal polypus; (7) a second case of wound of the palm, in which four pairs of forceps were left in the wound for six days, when they fell away spontaneously; (8) an amputation of the thigh in the country, where, however, the forceps were only used temporarily during the operation, for want of a skilled assistant; (9) a wound of an artery in the removal of a tonsil—the patient, a student, having operated on himself; (10) bleeding from the diploë in trephining, where M. Verneuil compressed and crushed the bone in a pair of pincers; (11) bleeding from an artery, laid open in making incisions in diffuse inflammation, which could not be tied from its having retracted; and (12) an operation for the extirpation of an aneurism by anastomosis, in which a circle of thirteen pairs of forceps were left on for six or seven days, when they came away of themselves. [It is obvious that in some of these instances acupressure could have been used, and probably with more advantage, while in others most English surgeons would have resorted to the cautery, or to torsion; but where the vessel wounded is in a deep and narrow cavity, the method, though no doubt a rough one, is probably superior to any other form of compression, even when any other could be employed.—*Rep.*] T. HOLMES.

WARLOMONT ON THE CASE OF LOUISE LATEAU, THE MYSTIC OF BOIS D'HAINES.

An extraordinary meeting of the Royal Academy of Belgium was summoned for February 13, to hear the report of the commission appointed to report on a memoir by M. Charbonnier on 'The Disease of the Mystic, Louise Lateau.'*

M. Warlomont, the reporter appointed by the commission, said that it was originally appointed to

read and report on M. Charbonnier's work, but that the members of the commission felt that such a proceeding would be very inconclusive without actual medical observation of the facts which it related; they therefore proceeded to the spot, and made the investigations detailed in the following report.

Dr. Warlomont acknowledges that no obstacles were placed in his way; on the contrary, every facility was given for his investigations, so long as they were confined to the phenomena which could be observed by day. What takes place by night is, as yet, unknown to the commission, as well as to all the rest of the world, and herein lies the great hiatus.

Louise Lateau was born at Bois d'Haine, in Belgium, where she still lives, on January 30, 1850. She had a miserable childhood, troubled by numerous diseases; the menses only appeared when she was eighteen years old. In March, 1868, she felt wandering pains of great intensity, completely lost her appetite, and brought up blood on several occasions. She passed a whole month on low diet, and consequently fell into a state of such weakness, that on April 15 the last sacraments were administered to her. However, she soon rallied. On the 19th, the periodic function commenced, and lasted three days, when she grew better so rapidly, that on the 21st she was able to go to mass in the parish church, about a mile and a quarter distant from her home. With regard to her mental condition, Louise had always liked solitude and silence; from her earliest childhood she repeated her morning and evening prayers with the utmost fervour, and had a particular love for prayers relating to the passion of the Saviour. When quite young, she often performed the devotions known as the stations of the cross, and told her beads every day. She made her first communion in 1861, and from that time took the sacrament first every fortnight, later on every Sunday, and after Whitsuntide of 1868 every morning. Such was the mental and physical condition of Louise Lateau at the time when the more special manifestations, the ecstasies and the stigmata, which have so strongly attracted public attention, both by their symptoms and their periodical return on the Friday of each week, began to display themselves. The commission confine themselves only to recalling this event, which however is not strictly authenticated. From this time they only relate facts which have come under their own observation.

In order to make his medical observation, M. Warlomont visited Louise Lateau three times on Friday, four times besides on the days on which the paroxysms occurred, and submitted her to long and minute examinations. In addition to the ecstasies and stigmata, the girl also presented another very extraordinary phenomenon; she was asserted not to have taken any food or drink since March 30, 1871. This allegation has given a particular direction to some parts of the medical inquiry. However it may be, the principal features of this inquiry are as follows: Height, one mètre sixty-three centimètres (5 feet 4.2 inches); weight, fifty-three kilogrammes (8 stone 4.7 lbs.); greenish-yellow complexion: conjunctiva, gums, soft palate and external ears colourless; skin dry, marking twenty-five kilogrammes by Regnier's dynamometer; pulsation of the heart feeble, without intermission; respiratory sounds soft in the first instance, equally perceptible at the level of the aorta and the carotids; arterial pulsations regular, varying from

* This report is given in the *Gazette Hebdomadaire*, February 19, 1875.

80 to 130, according to the period of examination; lips red; teeth white and good; the soft palate and uvula of the pharynx were sensitive to the touch, which however did not produce any reflex movement. Louise Lateau herself stated that she had not had any action of the bowels for three years and a-half. The respiration was normal, and the gases expired contained in perceptibly normal proportions the vapour of water and carbonic acid. Louise declared that she was constantly in pain all over her body, but that these pains were specially concentrated in the regions where the stigmata appeared, the backs and palms of the feet and hands, the left side, and the right shoulder; and that they became particularly intense on Fridays. The epigastric and dorsal pains peculiar to hysterical subjects were entirely absent. She said that since she had ceased to eat and drink, she no longer passed urine. Menstruation had remained regular. The blood, examined by the microscope, was normal as to its anatomical elements, but serous, and contained a large relative proportion of white corpuscles. Special scenes took place every Friday, which were in preparation on the Thursday. On that day Louise was up and going about as usual, but suffering from headache, hot and dry skin, full and quick pulse; in one word all the signs of a violent *molimen hæmorrhagicum* were present to a large extent. From eight o'clock on Thursday evening until nearly six o'clock on Friday morning she remained alone in her cell, without a bed on which to lie down; she affirmed that she watched and prayed. No one, however, has witnessed her proceedings. When M. Warlomont, entered her room about six o'clock one Friday morning, he found Louise seated on the edge of a wooden chair supported by the wall opposite the window, and consequently in full light. The upper part of her body was slightly leaning forward; her hands were clasped under a white linen cloth spotted with freshly shed blood. Her huddled-up attitude was that of great suffering. Dried blood was visible on her forehead. Her cheek-bones were red, and she was in full possession of her senses.

On Fridays, blood flowed from different parts of her body. The following are the particulars on this point observed by M. Warlomont on his first visit on September 18, 1874. The upper part of the forehead was covered with dried blood which, it appeared, had flowed from midnight until six o'clock in the morning, but had then stopped. When washed with a wet towel, the forehead became perfectly clean and remained in the same condition the rest of the day. The epidermis, when examined with the magnifying glass, showed neither erosions nor scratches. In the backs and palms of both hands there were two bleeding wounds, from three-quarters of an inch to one inch long, wider in the centre than at the ends. Red blood, like the blood of the capillaries, flowed incessantly drop by drop, and almost continuously from these four wounds. The stigmata of the back of the hand were in the centre of two shining nodes, hard to the touch and painful. Examined by the magnifying glass, the depth of the wound showed red, turgescient, acuminate papillæ of the dermis, in some places resembling true proud flesh. A fragment of the dorsal stigmata of one of the hands, taken out by the scissors, showed under the microscope a papilla of the dermis and some capillaries considerably increased in size. The wounds of the two feet resembled those of the two hands, but were of smaller extent. They had only yielded a little blood. Louise had kept on woollen stockings, which

had probably contributed to arrest the flow. The bleeding on the left side followed the level of the space separating the fifth from the sixth rib, outside and a little below the centre of the left breast. The wound was about half an inch in diameter, and had yielded but little blood. There was a wound of about an inch and a quarter square, which strongly resembled the epidermal surface denuded by an ammoniacal blister. The wound was open, and large drops of serous matter, and some small drops of blood, exuded from it. It appeared that, at the outset, the hæmorrhage was always preceded by the formation of blisters, but those were no longer produced. It was also said that at first the wounds became cicatrised the day after their appearance; but such is not the case at present; the dorsal wounds of the hand having no longer the time to close up completely between one paroxysm and the next. At a quarter past six o'clock, the communion was taken to the penitent in her own cell. She knelt down, received the host, and then remained for half an hour in a state of ecstasy, during which, she appeared insensible to all outward distractions. At the end of half an hour she again seated herself on her chair, and resumed her former attitude, in which she remained until a quarter past two. At this time she fell into a fresh ecstasy, and those desirous of witnessing the sight were introduced, to the number of twenty-five persons, into a cell capable of containing ten with comfort. The ecstasy comprised three stages or periods. In the first stage Louise was seated on her chair, her body bending forwards; her eyes were wide open, fixed, turned upwards, and to the right. The pupils were dilated, and light did not at first cause contraction. Sight appeared annihilated; nevertheless, there was a slight winking of the eyes when the finger was sharply applied to them. She was insensible to all irritations, prickings, and pinchings; the strongest electric current did not provoke any reflex movement. The hearing was closed to ordinary excitements. The region of the stigmata, painful up to that time, could be pressed, pinched and rubbed vigorously, without causing any manifestation of pain. In the second stage, the girl fell on her knees, remained about a quarter of an hour in that attitude, then returned to her seat. The third stage was that of prostration; towards three o'clock she bent a little forward, rose slowly, then laid herself down, with her face on the ground, without rigidity or haste, her two knees first touching the stone floor, then her elbows and face. Her arms were extended in the shape of a cross, her feet joined together. During this stage, which lasted an hour and half, her circulation and respiration underwent various changes, too long to detail in this report. She rose from this position about half past four, and immediately recovered consciousness. Her pains, until then unfelt, returned, and gradually diminished, until they disappeared at half-past eight, when the paroxysm finished, to be reproduced on the following week.

The commission appointed by the Royal Academy of Belgium to investigate the case of Louise Lateau have reported that the genuineness of the ecstasies is uncontestable. As to the stigmata, of which the spontaneity of their production was strongly questioned, the commission not being able to arrive at the primary cause, whether mechanical or spontaneous, which gives rise to them, it was necessary for them to confine themselves to making certain of the manner, whether spontaneous or artificial, by which

the hæmorrhages are produced. In order to determine this point, it was necessary to resolve the following problem : to place one of the stigmatised hands, before the bleeding, on the evening before the crisis, in an apparatus which, without altering any of the physiological conditions of the part, would render impossible the contact of any penetrating instrument or the intervention of any process capable of making it bleed ; and to keep on this apparatus from the Thursday to the next day. For this purpose M. Warlomont invented a very simple apparatus, which realised the desired conditions ; it consisted of a glass globe about four inches in diameter, having a neck like an ordinary bottle at one of its poles, and at the other pole another neck about three inches in diameter. The first neck was closed by a cork, traversed by a bent glass tube not extending beyond the outside surface of the cork. The inside end of the cork, as well as that of the tube, was covered by a wire gauze, not interfering with the ingress of air, but preventing the introduction of any penetrating instrument. The corks and tubes were fixed by several seals. The second neck was covered with a kind of muff or sleeve of India-rubber cloth, fixed to its outer rim by India-rubber cement and sealed with six seals. This apparatus was put on by M. Warlomont and Dr. Duwez on Thursday, January 21, at 2 P.M. After the absence of any flux from the stigmata had been verified, the patient's right hand was introduced into the bottle through the large opening, then the kind of muff or sleeve was brought down over the arm, which it covered as far up as the sleeve of the chemise ; it was cemented to the arm by the same adhesive application, then finally closed up by a bandage, nearly an inch wide, brought twice round the arm, and carefully sealed up. This done, all the apparatus was enveloped in a bag of gutta-percha cloth, fixed to the shoulder by two turns of another bandage, sealed with two seals. The India-rubber and gutta-percha cloths would inevitably betray the passage of the finest needle. On Friday, the 22nd, at half-past ten o'clock in the morning, M. Warlomont entered Louise Lateau's cell, accompanied by Professor Crocq, of Brussels, who had undertaken to remove the apparatus and declare the result. It was this : 'The right hand was closed up in the apparatus which M. Warlomont had fixed on the previous evening. The apparatus was perfectly intact, as we assured ourselves by the most careful examination of the outer envelopes and the seals, not one of which bore the slightest trace of having been tampered with. The sloping portion of the receiver was filled with a small pool of liquid blood, and the back and palm of the hand were covered with clots of blood firmly adhering to the palms. It therefore appeared that the effusions of blood did really occur spontaneously, and without the intervention of any violent means from without.'

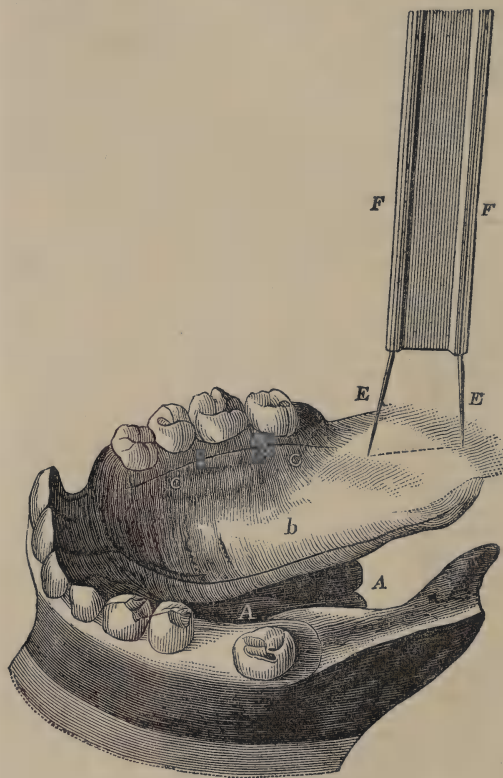
During one of M. Warlomont's visits to Louise Lateau, he asked her to take about fifteen grammes of bread and thirty of infusion of coffee, which she did without any difficulty. She felt sick about ten minutes after taking it, but it remained on the stomach half-an-hour afterwards, when the commission left. It has, however, been asserted that persons worthy of credit had some hours afterwards seen the food and some blood in a basin, and Louise had declared that she had vomited it after the trial in question.

(To be continued.)

PRINCE ON STAPHYLOGRAPHY.

At a meeting of the St. Louis Medical Society, on November 28, Dr. D. Prince introduced the subject of staphyloraphy, in which he called attention to the following three points : 1. The employment of galvano-cautery to diminish the loss of blood, and further to add facility to the operation and certainty to the result ; 2. The introduction of automatic needles, both for the introduction of the platinum wire for cautery and for the taking of the final stitches for the closure of the fissure ; 3. A new interpretation of the functions of the muscles in the pillars of the fauces, from which he concluded that their division is not only useless, but also injurious to the future completeness of the function of the palate.

FIG. I.



The method of Galvano-cautery applicable to the soft palate. The field is as if upside down ; the soft palate is, for convenience, conceived as if in a line with the hard palate. A A, the fissure through the hard palate and the soft. b and C C, lines of incision in the hard palate. E E, platinum wire in position with the loop on the other side of the membrane to be divided, being thus hidden from view. The dotted line between the portions of the wire indicates the line of cautery incision. F F, silver tubes, with wood intervening, sliding down on the wires to the surface of the palate where the incision is to be made. The passage of the current is controlled by an interrupter in a pedal. The strength of the current is regulated by the depth to which the plates of the battery are immersed.

He introduced the subject by a brief notice of the nature of cleft palate, hard and soft, and referred to the operations of Fergusson and Dieffenbach.

He referred to the division of the pillars of the fauces, as practised by Fergusson, as endangering

the future perfection of function. Previously to the adoption of Fergusson's method, Dieffenbach had made vertical incisions in the soft palate; these do not interfere subsequently with the functional movements of the part.

Velpéau (Mott's translation, vol. iii. p. 396) says: 'Of the side incisions through the velum, one is made on each side of the cleft, plunging the bistoury in half an inch from it and half an inch distant from either end of the cleft. The bistoury is then carried, with a sawing motion, directly to the hard palate. Considerable blood flows; and the mouth must be washed frequently with cold water.'

Dieffenbach recommended that the parallel incisions should be made after the completion of the sutures. The dangerous hæmorrhage liable to occur led to the abandonment of this plan. The galvanocautery permits us to restore this proceeding of Dieffenbach, and to carry it so far to the lateral base of the palate as to make the incision most effectual, without fear of the loss of blood. Furthermore, we are able to make this the initiative proceeding in

operations upon the soft palate. By this means the automatic movements of the palate are annulled, and the paring of the edges of the fissure is performed with much greater facility. Even under ether, the half uvula on each side rises and falls with respiration, and the half-palate approximates and recedes. The movement, in a great degree, ceases after the vertical incision.

The incision made by Dieffenbach had for its object simply the relief of the strain upon the sutures, and was practised as the last step in the operation. With the cautery wire, and as a first step, it greatly facilitates the operation, at the same time that all possible strain upon the stitches is prevented. The cautery incisions are packed full of oiled paper, which is held there by the sutures, in order not only to take off the tension from the sutures, but really to crowd those surfaces together which are expected to unite. These stuffed openings, one on each side, will close up afterwards. The crossing of muscular fibres favours this closure.

On the other hand, the muscular fibres all pull

FIG. 4.

FIG. 3¹

FIG. 2.

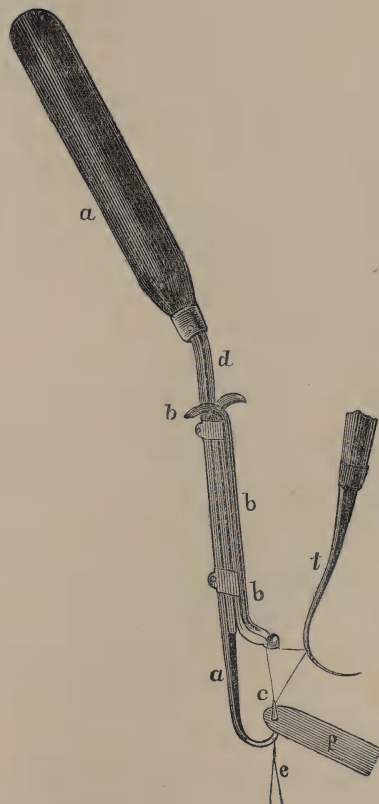


FIG. 2.

a a, needle curved in the form of a tenaculum, with an eye near the point *d*; *b b*, thread; *c*, slide curved at the lower end and fenestrated for the reception of the needle, in order to ensure the exit of the point opposite the place of entrance. The thread is to be pushed up with a tenaculum.

FIG. 3.

Dr. Black's improvement upon Prince's needle, being automatic. *A A*, a shaft with handle at one end, and hook, *B*, upon the other end, fenestrated at the place of the dotted line for the reception of the needle, *C*, which has an eye near its



point for the reception of the thread, *E E*. *D*, a shaft moving a short stilette in *B* which picks up the thread.

FIG. 4.

Another form of Black's improvement. *a a*, shaft with handle and curved needle-point as in fig 2. *b b b*, fenestrated slide for the reception of the point of the needle, *c*, holding the thread, *e e*. *p*, pasteboard showing the position of the needle having pierced a membrane with the stitch already picked up. *d*, the thumb-piece of a shaft moving a short stilette in the lower end of *b b b* which picks up and holds the stitch.

away from the median line, making a tendency to become larger instead of smaller. This pull upon the median line is sufficient, after union, to approximate the separated bony arch of the mouth, where there is, at the same time, an opening in the hard palate, making the fissure between the mouth and the nose narrower. This is a reason for closing the soft palate first and the hard palate afterwards.

Note was made of the physiological objection to the plan of Fergusson, of dividing the palatoglossus and palato-pharyngeus. It is found, by observation upon the movements of the curtain of the palate in halves, that the contractions of both these pairs of muscles approximate the sides of the cleft palate; in one case which was observed, causing the two halves of the uvula to come into contact. The mode of this will readily be understood by recalling the manner in which the tongue is protruded by the genio-hyo-glossus. So, while the palate is stiffened by the fibres of the tensor palati, the levator palati, the azygos uvulae, and by a few fibres of the palato-glossus and palato-pharyngeus, the main portions of these last two muscles engage in approximating the two halves. To cut these muscles is, therefore, physiologically absurd, besides endangering their future functional perfection. Without the action of the palato-pharyngeus, the perfect articulation of the gutturals is impossible. The loss of the function of the palato-glossus would not be seriously felt in articulation.

In an operation beyond the reach of touch by the fingers, great importance attaches to the quality of the instruments employed. The conception of the employment of galvano-cautery and its practice developed the necessity for an instrument capable of the more accurate introduction of a thread or wire than any with which Dr. Prince was acquainted. The needle represented in fig. 2 was exhibited, having a slide with a fenestra closing down over the point.

The possibility of knowing the point of entrance, which is out of sight, and that the point of exit will correspond, is achieved. This is important in introducing the platinum wire for cautery—the parts at the lateral base of the palate being thick with much connective tissue between the muscular layers. The convenience of the same instrument for the sutures, for permanent retention, was also made clear.

Dr. Black, a dentist of Jacksonville, has made an improvement upon this needle, by which a pick-up pin is made to catch and hold the stitch, so that certainty of position and ease of execution are combined. The needles are made in two forms—in one the needle recedes from the operator, and in the other it approaches him (Figs. 3 and 4).

ANATOMY AND PHYSIOLOGY.

VULPIAN ON THE ACTION OF JABORANDI AND ATROPIA ON PERSPIRATION.—M. Vulpian (*Progrès Médical*, February 13, 1875) says that it has been experimentally ascertained that atropia checks the flow of saliva from the submaxillary gland by paralysing the terminal filaments of the chorda tympani. Heidenhain has shown, further, that the vaso-inhibitory (or vaso-dilator) fibres contained in the chorda are not affected by the drug; for excitation of the glandular filament of the chorda (*i.e.*,

faradisation of the lingual before the glandular filament is given off from it) accelerates the circulation through the gland quite as well after the administration of atropia as before it; in the former case, however, it no longer succeeds in causing a single drop of saliva to flow from Wharton's duct. Lastly, we may conclude that atropine does not act directly upon the secreting cells; for the same slight exudation of saliva is caused by electrical stimulation of the cervical sympathetic in a curarised dog, whether it be under the influence of atropine or not.

Now if either muscarin or jaborandi be injected into the femoral vein of a curarised dog, profuse salivation ensues; this may be immediately arrested by the subsequent injection of atropia. What we already know of the action of the latter alkaloid, authorises us to conclude that both muscarin and jaborandi excite salivation by stimulating the terminations of the secretory fibres of the chorda tympani, and not in virtue of any action on the sympathetic.

By putting together what is known about the influence of atropia and jaborandi on the salivary secretion, and about their mutual antagonism as regards the perspiration, Professor Vulpian endeavours to throw light on the nature of the influence exerted by the nervous system on the latter function. After referring to the experiments of Bernard, who showed that section of one cervical sympathetic in the horse was followed by sweating of the head and neck on the same side, while stimulation of the upper end of the divided cord arrested the secretion, he suggests that the sweat-glands may probably stand in much the same relation to the vaso-motor system as the submaxillary gland. Moreover, since atropia and jaborandi do not influence the submaxillary secretion through the sympathetic nerve, their corresponding action on the perspiratory function should not be attributed to any stimulation or paralysis of vaso-motor fibres. We may legitimately suppose that the functional activity of the sweat-glands is controlled by some nervous mechanism analogous to the secretory filaments of the chorda tympani in the case of the submaxillary gland.

He adds a hypothesis concerning the mode of action of the chorda tympani. It is not needful, he thinks, to suppose that its terminal filaments are in direct relation with the secreting cells. We may regard the secretion of the submaxillary gland as being under the control of intrinsic inhibitory ganglia. The degree of activity of these ganglia is inversely proportionate to the functional activity of the secreting tissue. The glandular filaments of the chorda tympani are intimately connected with these regulating centres; stimulation of those fibres arresting the action of the ganglia, while their paralysis leaves the ganglia to operate unchecked. Jaborandi and muscarin paralyse the inhibitory ganglia; they do what may be done by electrification of the chorda tympani. Atropia, on the other hand, exalts the normal activity of the ganglia; its action being analogous to section of the chorda tympani.

LANGLEY ON THE ACTION OF JABORANDI.—Under the title of 'Preliminary Notice of Experiments on the Physiological Action of Jaborandi,' Mr. J. N. Langley, of St. John's College, Cambridge, sends a very interesting and important communication to the *British Medical Journal* of February 20. He finds that, injected under the skin, jaborandi excites through its influence on the spinal cord, tetanic convulsions similar to

those of strychnia. In dogs and rabbits this effect was not observed, though this difference may depend on the dose.

The drug, introduced into the jugular vein, at once lowered the pulse in dogs and rabbits. The pulse was reduced to one-third its previous rate. In the frog the drug arrested the heart in diastole, but atropia caused the heart to beat again. He concludes that jaborandi stimulates the inhibitory fibres of the pneumogastric, but does not rapidly exhaust them. In the dog and rabbit, jaborandi caused slight decrease in arterial pressure.

Injected under the skin of a frog's back, it dilated the arteries, capillaries, and veins, and retarded, nay, even arrested the circulation of the web of the foot, whether the sciatic nerve were intact or divided. Injected into the jugular vein of a rabbit, after section of the sympathetic of one side, jaborandi first contracted and then dilated the vessels of the ear; the dilatation was greater than on the side where the sympathetic was left uncut. He concludes, therefore 'that paralysis of the normal vaso-motor influence does not thus seem to be one of the most prominent characteristics of jaborandi.'

As jaborandi caused increased secretion of the submaxillary gland after section of the chorda tympani, he concludes that the drug acts on the periphery of the nerve. It rapidly exhausts the gland. Section of the sciatic nerve appeared to have no influence over the secretion of the skin of the leg excited by jaborandi.

Mr. Langley points out the similarity between the action of jaborandi and of physostigma.

RECENT PAPERS.

Researches on the Elements of the Blood. By M. L. Ranvier. (*Archives de Physiologie*, January and February, 1875.)

On the Influence of Curara on the Amount of the Lymph and the Migration of the White Blood-Corpuscles. By M. Tarchanoff. (*Archives de Physiologie*, January and February, 1875.)

Lectures on the Occurrence of Organic Forms in connection with Contagious and Infectious Diseases. By Dr. Burdon Sanderson. (*British Medical Journal*, January 16 and February 13.)

On the Lymphatic System. By Dr. Alph Hergott. (*Revue Médicale de l'Est*, February 15, 1875.)

On the Excretion of Nitrogen in the Urine. By Dr. Byrnes Power. (*Dublin Journal of Medical Science*, February, 1875.)

PATHOLOGY.

RENAUT ON CUTANEOUS ERYSIPELAS AND OEDEMA.—A recent contribution to the anatomical and clinical study of erysipelas and oedema of the skin, by Dr. J. Renaut, has been summarised in the *Revue Médicale de l'Est*, January 15, 1875. The distribution of the lymphatics of the skin is first discussed. This is best shown by the superficial subcutaneous injection of a watery solution of Prussian blue by means of a Pravaz's syringe introduced obliquely, so that, the point of the syringe being visible through the epidermis, the fine plexus of the superficial lymphatic capillaries is thus displayed, the colouring matter penetrating from these into the deeper layers, where larger trunks, provided with valves, abound.

Vertical sections of skin thus injected show the lymph-capillaries forming irregularly dilated channels with angular outlines, the most superficial net-

work being below the level of the papillæ and their blood-capillaries, occupying mainly a position intermediate between the superficial vascular plexus whence the papillary loops are given off, and the wider meshed network of blood-vessels surrounding the cutaneous glands. A lymph-capillary is formed simply by the spaces left between the connective tissue bundles of the dermis, bounded by flat epithelial cells, each having a large vesicular nucleolated nucleus. The transition from these simple lymphatic spaces to the deeper trunks provided with definite walls of connective tissue and smooth muscular fibre, is very gradual.

The lesions produced in the skin by erysipelas are simply those of inflammation, of a dermatitis (lit. *dermitis*). Thus there is an infiltration of the skin with white corpuscles by diapedesis from the vessels, corresponding to inflammatory oedema, at first limited to the vicinity of the dilated blood-vessels, and later distributed throughout the dermic tissue. Absence of abundant fibrinous exudation distinguishes erysipelas from abscess; but the transuded liquid is more coagulable than in simple oedema. The cellular infiltration may occupy all the meshes of the dermis, usually it is collected around the blood-vessels, hair-follicles, and sweat-glands. The lymphatics of the dermis must be regarded as the usual destination of the cells. In the deep layers of the dermis there is proliferation of the flat cells coating the connective tissue-fibres, the resulting elements being larger in size than the migrated white blood-cells, besides possessing small vesicular nuclei. There is also true inflammation of the adipose tissue, with proliferation of its elements. In about one-fourth of the cases the larger lymphatics are inflamed, while in the lymphatic glands there is proliferation of both the lymph-corpuscles and of the fixed stromal cells. Erysipelas ends by simple resolution, the infiltrated cells being resorbed or degenerating, or it terminates in suppuration. In the latter case islets of pus-corpuscles occur, which eventually undergo granular and fatty degeneration, and are probably taken up by the lymphatics.

M. Renaut concludes that there is nothing distinctive about the cutaneous lesion in erysipelas; the dermatitis scarcely differing from that induced by experimental irritation. He urges, however, that these changes must only be regarded as part of the disease, the characteristics of which must not be based simply on the cutaneous lesion any more than upon any one of its symptomatic manifestations taken apart.

Ranvier has shown that, in the different varieties of passive as in inflammatory oedema of the skin, there is an infiltration of white blood-corpuscles into the meshes of the connective tissue; the transit of corpuscles and serum being due to increased blood-tension in the capillary networks; this condition arising from simple atony of the vessels apart from venous obstruction. (See Cornil and Ranvier, *Manuel d'Histologie Pathologique*, p. 445.) Paralysis of the muscular fibres of the vessels by destruction of vaso-motor nerves suffices for this. This refers to primary oedema, but the cutaneous oedema following prolonged oedema of the cellular tissue has been hitherto but little studied. Here, in addition to dilatation and engorgement of the blood-vessels, surrounded by exuded white corpuscles, which also occur in groups between the fibrous bundles of the dermis, there is invariably a dilatation of the lymphatic capillaries, forming stellate lacunæ, many of

which are stuffed with desquamated epithelium. Hard or hypertrophic œdema consists in a chronic and subacute inflammation of the skin, with consequent hyperplasia of its tissues; it is always accompanied by dilatation of lymph-capillaries, and even of the larger lymphatic trunks and afferent vessels of the glands, which may also become chronically inflamed and converted into fibrous tissue; stagnation of lymph occurs in the dilated vessels and later in the connective meshwork, so that chronic cutaneous œdema may end in elephantiasis hypertrophy. There is thus a striking analogy between the lesions produced by chronic œdema and by erysipelas. M. Renaut believes that this anatomical likeness serves to explain the frequent association of the two affections, erysipelas leading to œdema, or chronic cutaneous œdema favouring the development of erysipelas; and he supports his view by an analysis of clinical facts.

The relations between œdema and erysipelas on the one hand and lymphangitis on the other, are also discussed. Inflammation of the lymphatic trunks is to be regarded as an epiphenomenon of erysipelatos dermatitis. Lymphadenitis is more constant, and shows the active part played by the lymphatic system in the disease; the inflamed glands, as M. Raymond has stated, acting as temporary barriers to the absorption of septic virus. Œdema of the lax muscular tissue and of the skin may equally result from lymphangitis and from acute or chronic lymphadenitis.

SIDNEY COUPLAND, M.D.

KEY ON SPHENO-OCCIPITAL ECCHONDROSIS.—Professor Axel Key describes in the *Hygiea* for 1874 (abstract in *Nordiskt Medicin. Arkiv*, vol. vi. no. xxxii.) a growth found during the *post mortem* examination of a man who had died of cerebral abscess. The tumour, which was 0.54 inch long and 1.6 inch broad, presented a greyish gelatinous appearance; it was soft, and of fluid consistence in the centre. It arose from a point corresponding to the junction between the sphenoid and occipital bones, and was attached to a small bony projection which perforated the dura mater. The tumour presented both to the naked eye, and microscopically, the ordinary characters of the rather rare form of ecchondroma which is developed in the original site of the sphenoccipital synchondrosis. At several points, there seemed to be a fusion of diverticula from adjacent cells, giving rise to peculiar structures; and there appeared to have been a process of fusion at its base. The tumour did not produce any symptoms during life, in consequence, Herr Key believes, of its having sufficient room in the subarachnoid space to grow without pressing on the brain.

BULL AND HANSEN ON CANCER OF THE STOMACH, WITH SECONDARY DEPOSITS ON THE LIVER AND LUNGS.—Bull related to the Bergen Medical Society (*Norsk Magazin för Lægevidenskaben*, series iii. vol. iv., abstract in *Nordiskt Medicin. Arkiv*, vol. vi. no. 32) the case of a man, aged fifty-nine, who had always appeared to be strong and healthy; he led a regular life, and was of powerful frame. In the autumn of 1872, and again in the spring of 1873, he passed blood in his urine, but without pain. After this he lost his appetite, his strength gradually diminished, he became emaciated, and died in May, 1873. A *post mortem* examination was made by G. A. Hansen. Two cancerous ulcers were found at the pylorus. The liver contained numerous large

somewhat firm metastatic nodules. The lymphatic glands below the liver and behind the stomach were infiltrated with cancer. On the surface of both lungs were numerous stellate scirrhous contractions, surrounded by small flat nodules; and from the cicatricial depressions, wedge-shaped infiltrations passed into the substance of the lungs. There were large calculi in the pelvis of both kidneys, and these organs were remarkably atrophied.

A point of interest in this case is the very slight amount of functional disturbance, in spite of the long duration of the disease. A. HENRY, M.D.

RECENT PAPERS.

Experimental Study on Contusion of the Liver. By Dr. Terrillon. (*Archives de Physiologie*, January and February, 1875.)

Chronic Diseases of the Locomotor System. By M. Dubreuil. (*Le Mouvement Médical*, February 6.)

MEDICINE.

CHADWICK ON A CASE OF IMMEDIATE TRANSFUSION.—Dr. James R. Chadwick relates (*Boston Medical and Surgical Journal*, Jan. 14, 1875) the case of a woman, thirty-two years old, who, eleven weeks before admission into the Massachusetts General Hospital, had given birth to her second child. The labour was easy and natural, but was accompanied by smart hæmorrhage; and this recurred frequently till within two weeks of her admission, reducing her from robust health to extreme anæmia with constant headache, constipation, etc. Iron, generous diet, etc., having been tried for a week, Dr. Minot, in whose ward she was, found that she was sinking, and requested Dr. Chadwick to perform transfusion, which he had previously declined to do until less severe measures had had a fair trial. On June 3, at 6 P.M., the pulse was 118, respiration 30, temperature 102.8°, and there were other serious symptoms. On June 4, the operation was performed with Aveling's instrument for direct transfusion, as supplied by Messrs. Krohne and Sesemann of London. The blood-giver, Dr. J. J. Putman, laid his left arm beside the patient's right one, and the patient's median basilic was opened by a V-shaped incision, access to it being first gained by a transverse incision through the skin. The afferent nozzle was then taken out of the basin of warm water, care being taken not to let the water escape, and introduced. A direct longitudinal incision was made into Dr. Putman's median cephalic vein, but the efferent nozzle could not be introduced, and it was therefore introduced into the radial; the afferent nozzle had meanwhile become choked, and required cleansing and re-introducing. The two were then connected by an India-rubber tube full of warm water, and the operation performed, the bulb being filled and emptied twenty-two times; this, according to the printed directions sold with the instrument, should have given five and a-half ounces; but eleven ounces were transfused. The bulb filled badly during the last two times, apparently from anæmia (induced) of the blood-donor. The immediate result was to reduce the pulse to 104, to bring colour to the patient's lips and cheeks, and to produce some back-ache and heart-beat. Some difficulty was experienced in stopping the hæmorrhage from the vein; but when all was finished, she felt stronger

and better. Shortly a severe rigor, lasting an hour, came on, the temperature rose to 106.4°, the pulse to 134, and there was nausea and vomiting; the latter was severe two hours after the rigor, and the bandages became loose, and about five ounces of blood escaped; a ligature was therefore applied to the vein. Three hours later the patient was delirious, then comatose, in which condition she remained during the night. She was conscious in the morning, but gradually sank, and died the next night at 7 P.M.

The necropsy, twenty-six hours after death, showed general anæmia, acute internal pachymeningitis, increased fluid in the pericardium, spotted fatty degeneration of the heart, œdema of the lungs, etc. No thrombi or signs of froth or air-bubbles could be found anywhere. The urine in the bladder was slightly albuminous and smoky, and contained hæmatin.

Dr. Chadwick, in remarking on the case, points out that neither the symptoms before death, nor what was seen *post mortem*, pointed to any cause of death except general fatty degeneration. This he considers due directly to imperfect nutrition from repeated large losses of blood, occurring too rapidly to give nature time to repair the extraordinary waste. He points out that in such cases the vessels are full of poor watery blood, and that transfusion increases the vascular tension to an extent dangerous to the already degenerated heart, which has, besides distension, extra work to do in forcing the blood into narrowed channels. He considers this fatty degeneration of the heart to be nearly certainly present in this class of cases, and they are therefore not so

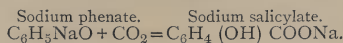
suitable for transfusion as cases where the loss of blood has been rapid, and the vessels are empty and collapsed. He states that Ponfick has described this form of spotted fatty heart as common in women dying after hæmorrhages in childbed, and that Perl has artificially induced a similar condition in dogs by repeated bleedings. These views had led him to decide only to transfuse six ounces of blood; but the wrong description of the capacity of the bulb caused the transfusion of eleven ounces, and hastened the fatal termination, which, however, he considers inevitable in such a case. He advocates repeated small transfusions in such cases, or letting the poor blood flow away from the other arm while the new blood is passing in. Aveling's instrument worked well. In conclusion, he questions the propriety of attributing the anæmic systolic bruit to an impoverished condition of the blood, and thinks it more likely that it is symptomatic of fatty heart. Such a bruit was heard in this case before the operation, and remained unchanged to the end.

J. KNOWSLEY THORNTON.

EBSTEIN AND MÜLLER ON THE TREATMENT OF DIABETES MELLITUS BY CARBOLIC ACID, WITH REMARKS ON THE USE OF SALICYLIC ACID IN THIS DISEASE.—Eight columns of the *Berliner Klinische Wochenschrift* for February 1, 1875 (no. 5), are occupied by a paper in continuation of one by the same authors in no. 49 of that journal for 1873. Whilst still recommending carbolie acid for many cases of this disease, they candidly admit instances of failure, especially when there is only a very small percentage of sugar. In some of these

Sex.	Age.	Duration of Symptoms.	Quantity of Urine in twenty-four hours.	Percentage of Sugar.	Treatment.	Results and Remarks.
F.	46	5 months?	8 to 10 pints.	1.25, sometimes none.	5iv carbolie acid	Results of treatment negative. Had double optic atrophy, with left-sided symptoms, such as headache, deafness, etc.
M.	34	From spring of 1872.	5 to 7 pints.	3 to 4.	Restricted diet, and glycerine. Tartaric acid, carbolie acid, and iron. Change of air. Carlsbad iron and cod-liver oil. Salicylic acid, 3j nearly in four days.	Change of air seemed to do a little good at one time. He gained weight whilst using glycerine. Carbolie acid and salicylic acid seemed useless. So did Carlsbad water.
M.	60	6 or 8 months.	5 to 7 pints.	4 to 5.	Carlsbad water. Carbolie acid, 3iv.	No result from either.
M.	?	Not stated, but 3 or 4 years at least.	Not stated.	4 to 5.	Carlsbad (residence). Carbolie acid, seven or eight grs. a day. Salicylic acid, about three grs. in all.	Carlsbad and carbolie acid both diminished the sugar almost to nothing. Salicylic acid was useless.
M.	34	1½ years.	Not stated.	Not stated.	Carbolie acid, 3iv in eighteen days.	Relief. Had double cataract and was impotent.
F.	52	1½ years.	17 pints.	6 per cent.	Antidiabetic diet, and five grs. carbolie acid per diem.	Great relief. She had a large number of painful subcutaneous tumours [neuromata.] Ptosis and paresis of muscles of right eye, from an injury?
M.	48	2½ years.	Not stated.	Very large quantity of sugar.	Carbolie acid.	Complete cure of glycosuria. Had phthical symptoms. Had chronic bronchitis and dyspepsia.
M.	70	4 years.	Not stated.	4 to 5.	Restricted diet. Carlsbad and Kissingen Spas. Carbolie acid, 3ij in all.	Temporary cures with all these remedies. Effect of carbolie acid very marked.
F.	54	2 years.	14 to 17 pints.	3 to 4.	Restricted diet, and carbolie acid, 3iv.	All sugar disappeared. Relapse, and again relief by same means.
M.	47	2 or 3 years?	Not stated.	5 per cent.	Carbolie acid. Salicylic acid, fifteen grs. Carbolie acid, again, fifteen grs.	Relief from carbolie acid. No effect at all from salicylic acid. All sugar disappeared in three days with second administration of carbolie acid.

Carlsbad water was serviceable. The chief interest of the paper lies, however, in the trials of salicylic acid, which they were induced to make by the experiments of H. Kolbe (*Journal für Praktische Chemie*, x. Jahrgang, 1874), showing many interesting analogies between this substance and carbolic acid. Thiersch also has shown that it may be used in surgery with all the good effects and none of the unpleasant smell of phenol. [Salicylic acid ($C_7H_6O_3$) may be prepared by passing carbon dioxide into phenol containing small pieces of sodium :



By dry distillation, salicylic acid is again converted into phenol or carbolic acid. Vide *Fownes's Chemistry*, edited by H. Watts, pp. 792, 820, etc.] In three instances, the authors found no good effects from the use of salicylic acid. For details of these, the reader is referred to the original, but the brief outlines are as follows. (See table on previous page.)

They point out that, even when carbolic acid does not cure, it seems, when well diluted, not to prove in the least injurious. Patients do not complain so much of the taste as might be expected, especially if a little peppermint-water be added. As glycosuria is clearly a symptom rather than a disease, no one method of treatment is likely to be serviceable. Carbolic acid seems to act by its remarkable power of preventing fermentation. [The number of cases, and the quantity of salicylic acid given, seem to the reporter too small to permit any definite conclusions as to its effect to be drawn.—*Rep.*]

W. BATHURST WOODMAN, M.D.

GERHARDT ON ACUTE INFECTIOUS DISEASES.—Dr. Gerhardt has grouped together, under the title of contribution to the natural history of acute and contagious diseases, a considerable number of interesting facts, which are published in the *Deutsches Archiv für Klinische Medicin*. In observing the variations in the duration of the period of incubation in different febrile diseases, it is interesting to mark how constant it seems to be in some, whilst in others it is variable or not well defined. In measles, small-pox, varicella, roseola, typhus, and mumps, the period of incubation is fourteen days. In typhoid fever it is from two-and-a-half to three or four weeks, the average being three weeks; in scarlatina from five to seven days; in syphilis from four to six weeks. Certain causes may induce variations in the length of the incubatory period, as, for instance, the external temperature. Vaccine becomes developed more rapidly in the summer, and the vesicles of small-pox appear more quickly in parts exposed to heat. The way in which the organism is impregnated has also an effect on the duration of incubation. It is recognised that inoculated small-pox has a shorter period of incubation than when the disease is taken through the medium of the air-passages.

Gerhardt reports a case in which the contagion of scarlet fever seems to have been communicated by a surgeon's knife (?), and in which the disease appeared after four days' incubation.

It is probable that the administration of medicines may influence the duration of the incubation, as observed in syphilis, in which mercury certainly produces an effect of that kind. It is scarcely probable that the incubation may be influenced by the quantity

of virus; but it is probable that the particular conditions in which the virus is developed may have some action. Gerhardt believes that examples of relapse have been observed in all forms of acute contagious diseases. Cases of relapse in scarlatina have been described by different writers, the relapse generally occurring in the course of the third week. Relapses have also been observed in measles, roseola, and small-pox; and Dr. Gerhardt has also noted one in a case of mumps.

RECENT PAPERS.

Diagnosis of the Dyspnoic Form of Diseases of the Heart. By Dr. G. Sée. (*France Médicale*, February 3.)

On the Treatment of Neuralgia by the Constant Current. By Dr. Warton Sinkler. (*Philadelphia Medical Times*, January 30.)

Clinical Lecture on the Relation between Cirrhosis of the Liver and Heart-Disease. By Dr. MacSwiney. (*Irish Hospital Gazette*, February 15.)

Contributions to the History of Abscesses of the Liver. By Dr. Gueneau de Mussy. (*La France Médicale*, February 10.)

Cerebro-Spinal Fever. By Dr. J. B. Hamilton. (*New York Medical Journal*, February, 1875.)

Cholera. By Dr. Willis Alston. (*New York Medical Journal*, February, 1875.)

Laryngitis Stridulus, or False Croup.* By M. Jules Simon. (*Le Mouvement Médical*, February 13.)

On Fever. By Dr. Wood. (*Philadelphia Medical Times*, January 30.)

On Chlorosis. By M. Bouchut. (*Gazette des Hôpitaux*, February 16, 1875.)

Clinical Remarks on Chorea, with special reference to its Treatment. By Dr. Da Costa. (*Philadelphia Medical and Surgical Reporter*, January 30, 1875.)

Asiatic Cholera: its Nature and Treatment. By Dr. Quissac. (*Montpellier Médical*, February, 1875.)

On the Hypothesis of the Fæcal Origin of the Contagium of Diphtheria. By Dr. J. Jamieson. (*Australian Medical Journal*, November, 1874.)

Injection of Ammonia in the Collapse of Cholera. By Dr. Clutterbuck. (*Australian Medical Journal*, November, 1874.)

Goulstonian Lectures on Puerperal Fever. By Dr. R. J. Lee. (*British Medical Journal*, February 27.)

The Etiology of Puerperal Fever. By Dr. R. E. Huntley. (*Ibid.*)

SURGERY.

BERKELEY HILL ON GLEETS.—In the *Lancet* of February 13, Mr. Hill describes at some length the etiology, pathology, symptoms, and treatment of gleets. He divides them into two classes—urethral and prostatic, and these again into several subdivisions. In the treatment of the common form of urethral gleet, where there is little tenderness of the urethra or resistance to the passage of a sound, Mr. Hill advises the use of the French soluble bougies (Reynal's), one to be passed every night, and left *in situ*; the patient should also take twenty or thirty grains of powdered cubebs daily. If, however, the discharge be white and somewhat thick, and, on passing a sound, there be found to be tenderness and slight resistance at certain fixed points, Mr. Hill injects, through a bulbous-headed hollow sound, a few minims of a solution containing from ten to twenty grains of nitrate of silver to an ounce of water, opposite each of these tender spots, beginning with the most distant. The bladder should first be emptied, and the patient should retain his urine for some hours after the operation. Usually this treatment increases the discharge for two or three days, and it then diminishes or ceases altogether. If necessary,

the operation may be repeated in a week, a mild astringent injection being used in the interval; or the passing of a bougie every second or third day for a fortnight will often complete the cure. In cases where more decided inflammatory thickening of the urethral mucous membrane is shown by marked resistance to the passage of the sound, Mr. Hill introduces a bougie, the end of which is coated with peroxide of mercury or nitrate of silver suspended in cocoa-butter, in the proportion of five grains to an ounce; or he injects a stronger solution of nitrate of silver.

The treatment of gleet depending on subacute or chronic prostatitis is, as Mr. Hill confesses, less satisfactory. If the discharge be whitish and opaque, he gives frequent small doses of copaiba; if it be thinner, and if the prostate be not tender when pressed by the finger, tincture of cantharides, one or two drops four times a day, is most beneficial. The regulation of the diet is most important, and hip-baths are useful; but Mr. Hill has little faith in the value of counter-irritation applied to the perinæum.

HUTCHINSON ON THE USE OF THE TREPHINE. Speaking of the treatment of compound fractures of the cranial bones, Mr. Jonathan Hutchinson says (*Medical Times and Gazette*, Feb. 13) that when, although only a fissure is visible externally, there is reason to suspect that there may be splintering of the inner table to a much greater extent, *e.g.*, in 'punctured fractures,' the case should be watched with additional circumspection; and, if headache of a fixed and persistent character should come on, the trephine should be used. There is, of course, need of great care in the examination of this symptom of headache; but supposing that a patient, who has been quite comfortable during the first few days, should begin to complain of very severe pains beneath the seat of injury, and that the pain should be persistent and sufficient to keep him awake at night, the propriety of exploration would certainly be indicated.

Mr. Hutchinson is strongly of opinion that, by waiting for the symptoms usually mentioned as indicating the propriety of interference, the chance of a favourable result is greatly lessened, *e.g.*, when rigors occur the case is almost hopeless. The early symptoms of intracranial mischief are general feverishness, loss of appetite and headache, and of these, headache, if cautiously estimated, is undoubtedly the most important. He relates cases illustrating his practice, and sums up the result of his experience as follows. 'I have never regretted the performance of primary trephining, and have often regretted its omission.'

In cases of simple fracture, on the other hand, even though there be depression of bone, Mr. Hutchinson deprecates active interference. The relative danger of simple and compound fractures of the skull does not differ from that of similar lesions of other parts; 'the danger is not so much the fracture of the bone as its being exposed to the air; if then there be no admission of air we scrupulously avoid its introduction, and whether the fracture be depressed or not, we equally decline to operate.'

ENSOR ON DISTAL OPERATION FOR ANEURISM OF THE INNOMINATE ARTERY.—Mr. Fred. Ensor, surgeon to the Port Elizabeth Hospital, South Africa, reports, in the *Medical Times and Gazette* for February 6, a case in which he ligatured simul-

taneously the carotid and subclavian, in the hope of curing an aneurism at the root of the neck, which he supposed to arise from the innominate artery. The patient was a Kaffir Hottentot; he suffered from considerable dyspnoea and dysphagia, and was in constant pain. The operation appears to have temporarily relieved these symptoms; but at the time of the report, six weeks after the operation, the tumour was inclined to enlarge, the man was again suffering from dyspnoea on exertion, and could only swallow semi-fluid food. [It seems a pity that Mr. Ensor did not postpone the publication of this interesting case a little longer, and perhaps he might have been able to explain the cause of the failure.—*Rep.*]

J. W. LANGMORE, M.D.

LABBÉ ON TAPPING AS AN AID TO THE REDUCTION OF HERNIA.—In the Society of Surgery at Paris (*Gazette des Hôpitaux*, January, 1875) a discussion recently arose on the above method of diminishing the tension of a hernia before reducing it. M. Labbé related two cases where this plan had been adopted by M. Ollivier of Rouen.

In the first case, the hernia had been strangulated twenty-four hours; chloroform was administered, and taxis attempted without success. Further proceedings were delayed until the next day, when, by tapping the sac, some spoonfuls of brownish liquid were withdrawn; again attempts to reduce failed, and herniotomy was performed. The gut was found covered with false membranes, and the mesentery twisted. Death followed seven or eight hours later.

The second case was one of large umbilical hernia strangulated for fifteen to eighteen hours. The patient had an organic affection of the heart, so Ollivier decided not to give chloroform. The hernial tumour consisted of two lobes, one red and inflamed, the other normal and translucent. He punctured the sac, and withdrew a large wineglassful of liquid and reduced the hernia easily. The patient did well.

A discussion followed the narration of the cases. M. Labbé maintained that in cases of hernia the patient should not be left until the hernia is reduced; that puncture either of the sac or of the knuckle of intestine by a fine needle is a harmless operation and may facilitate the return of the protruded viscus. M. Després was against the puncturing hernial tumours as waste of valuable time, and urged that all strangulated herniæ should be operated upon as soon as possible, and when twelve hours have elapsed after strangulation, nothing should delay herniotomy. Any further attempt to succeed by taxis in such cases, he said, greatly increases the gravity of the prognosis. Labbé urged that for very large herniæ it is permissible to wait some little time; but with small plainly strangulated herniæ the simple taxis, prolonged, and aided by chloroform, should be followed by operation immediately. M. Lefort was content to apply this rule to crural herniæ, but not to inguinal, where no delay should intervene on any account.

BERKELEY HILL.

GUILLAUMET ON THE TREATMENT OF ATONIC WOUNDS AND CHRONIC ULCERS BY SULPHURET OF CARBON.—M. Paul Guillaumet, house-surgeon at the Saint-Lazare Hospital, laid before the meeting of the Société de Thérapeutique, on January 27, the details of some cases collected in Dr. Costilhès' wards. Some of them were cases of ulcer which had resisted all kinds of treatment, and were favourably modified by sulphuret of carbon. M. Guillaumet is of opinion that sulphuret of carbon

is a very powerful cicatrisant. Its action is limited and rapid, entirely local, and does not bring on any of the accidents which follow the prolonged inhalation of the vapours of this substance. There is sometimes acute pain at the moment of application, but it rarely lasts longer than from twenty to sixty seconds, and is immediately followed by an anæsthetic period which lasts several hours. The sulphuret acts upon wounds of different nature and origin, such as those connected with syphilis, scrofula, and diphtheria, and changes them all beneficially. It is a valuable agent in the treatment of chronic and atonic wounds and ulcers. As this substance is extremely volatile, and has a very disagreeable odour, M. Guillaumet gives very precise directions for its use. The bottle containing the pure sulphuret of carbon should be held very near the wound; a pledget of lint should be steeped in the liquid, pressing out the surplus of the medicament on the edge of the bottle; then the pledget should be quickly and lightly passed over the surface of the wound which should immediately be covered up with finely pulverised subnitrate of bismuth. The same method is pursued for all wounds, including those of the neck of the uterus. The powder of bismuth plays the part of an insulator, and acts as a protecting covering against the too rapid evaporation of the drug, increased by the heat of the body.

RECENT PAPERS.

- Fatty Traumatic Cysts. By M. Benjamin Anger. (*Le Progrès Médical*, February 13.)
 Union of old Divisions of Tendons. By M. B. Anger. (*Gazette des Hôpitaux*, February 16, 1875.)
 The Exostosis of Adolescents. By M. Richet. (*La France Médicale*, February 17.)
 Case of Old-Standing Arteriectasia. By M. Magnin. (*Lyon Médical*, February 21.)

MATERIA MEDICA AND THERAPEUTICS.

LISLE ON THE INTERNAL ADMINISTRATION OF SEA-WATER.—Lisle (*Bulletin Général de Thérapeutique*, February 15, 1875) says that the neglect of sea-water as an internal remedy is due partly to the difficulty of masking its nauseous taste, partly to that of preserving it for any length of time without decomposition. These difficulties were overcome by Pasquier in 1843, who filtered the water, and then saturated it with carbonic acid. His process was an expensive one, and never became popular, notwithstanding Roger's very favourable report upon it. That report stated that effervescing sea-water acted as a very efficient saline purgative; that it was taken by patients without any repugnance; and that, in doses less than purgative, it appeared to exercise a favourable influence on persons suffering from scrofulous maladies. The purgative properties of sea-water were known to the ancients and utilised by them, as is proved by the following extract from Pliny (*Hist. Nat.*, xxxi. 6): 'Inveteratur quod vocatur thalassomeli, æquis portionibus maris, mellis, et imbris; ex alto et ad hunc usum advehunt, ficulique vase et picato dunt. Prodest ad purgationes maxime sine stomachi vexatione, et sapore grato et odore.' Lisle's experiments lead him to the

conclusion that, besides being an useful purgative, sea-water acts as an alternative in all such cases as are benefited by saline mineral waters like those of Nauheim, Soden, Homburg, etc. He finds that its continued use increases the appetite, facilitates digestion, quickens nutritive changes, and augments the proportion of red corpuscles in the blood. Accordingly he recommends it: (1) during convalescence from acute diseases; (2) in the apyretic forms of dyspepsia; (3) in neurosis associated with impoverishment of the blood; (4) in the scrofulous and tuberculous diathesis; (5) in diabetes. Sea-water may be agreeably administered in bread, in the form of a syrup, or in that of an elixir. Bread made with sea-water can only be procured at the seaside; it is very palatable, and contains nearly five grammes of the mineral constituents of the water in each pound. The syrup is prepared by mixing 250 grammes of sea-water with a sufficiency of sugar and distilled water to make 500 grammes. Each table-spoonful of the syrup contains about twenty-five centigrammes ($3\frac{1}{2}$ grains) of the saline residue of sea-water; from two to five table-spoonfuls may be taken daily. The formula for the elixir is: sea-water, 200 grammes; rum, 200 grammes; sugar and distilled water up to 500 grammes. The dose at first is a table-spoonful three times a day.

To the obvious objection that a pharmaceutical mixture of the saline constituents of sea-water in their due proportions would serve the same remedial purposes as the sea-water itself, Lisle replies that the efficacy of all natural mineral waters is very much greater than that of their manufactured counterparts; the testimony of those who have instituted comparative trials being all but unanimous on this point.

MAYET ON FRUIT IN THE DIETARY OF DIABETIC PATIENTS.—Mayet (*Gaz. Médicale de Paris*, February 8, 1875) gives the mean result of a number of analyses undertaken in order to determine the proportion of sugar contained in various fruits, with a view to ascertain how far the addition of such fruits to the diet of diabetic patients may be allowable. It had already been shown by Buignet that many ripe fruits, such as apricots, peaches, plums, and strawberries, contain cane-sugar mixed with a variable proportion of inverted sugar; other fruits, among which are grapes, cherries, gooseberries, and figs, containing inverted sugar only. In relation to glycosuria, the two varieties of sugar are equivalent. Accordingly, the cane-sugar was in every case converted into inverted sugar by the action of dilute sulphuric acid, before the saccharine strength of the fruit was determined by means of Fehling's solution. The following are some of the results obtained. Raisins and dried figs yield from 71 to 76 per cent. of sugar; prunes, 42 per cent.; sweet cherries, 16 per cent.; acidulous cherries, 10 per cent.; garden strawberries, 12 per cent.; wild strawberries, 9 per cent.; oranges, 10 per cent.; gooseberries, 8 per cent.; plums and peaches, 10 to 12 per cent.; grapes, 16 per cent. Many fresh fruits, therefore, contain about 10 per cent. of sugar. The daily addition of 100 grammes of such fruit to the diet of a diabetic patient (100 grammes correspond roughly to twenty-five cherries, five table-spoonfuls of wild strawberries, 160 gooseberries, three or four large plums) would not materially increase the amount of glucose to be eliminated, while adding in a very marked degree to his comfort. E. BUCHANAN BAXTER, M.D.

RIEDEL ON THE THERAPEUTIC ACTION OF JABORANDI.—Dr. F. Riegel commences a paper in the *Berliner Klinische Wochenschrift*, February 8 and 15, 1875, by remarking that hitherto no observations on this drug have been made in Germany. He then gives a full account of the observations made in France. These writings have already been fully noticed in this journal.

He records ten observations made on patients suffering from different complaints. The temperature was taken in three cases. One of these was feverish, his temperature being 101° . The other two were free from fever. Dr. Riegel confirms the statements of previous writers, and adds nothing to our knowledge. The temperature fell during the sweating, the fall reaching respectively $1^{\circ}4'$ — $0^{\circ}9'$ — $0^{\circ}4'$ Fahr. The pulse was generally quickened, but in the fever cases, as the reporter found in his observations, the pulse fell. From sphygmographic observations, Dr. Riegel concludes that the jaborandi causes arterial relaxation and increased force of the heart's contractions. Sickness, giddiness, disorder of sight, glimmerings before the eyes, and strong desire to pass urine, were noticed in some of the cases.

SYDNEY RINGER, M.D.

TRASBOT, DUJARDIN-BEAUMETZ, AND GUBLER, ON MONOBROMIDE OF CAMPHOR.—M. Trasbot, one of the professors at the College at Alfort, has made some experiments on animals with the bromide of camphor, the results of which are at variance with those described by M. Bourneville. M. Trasbot first administered bromide of camphor to dogs attacked with epilepsy or chorea, and did not obtain any alleviation of the nervous symptoms. The dose given at first was ten centigrammes, afterwards increased to fifty centigrammes, and even to a gramme. In another series of experiments instituted with the object of studying the action of bromide of camphor, he never observed the slightest tendency to sleepiness, nor the least lowering of the temperature. On the contrary, this drug, in doses of from thirty centigrammes to one gramme, produced very decided symptoms of excitement and true convulsive fits, precisely similar to those induced by strychnine; so that, according to these experiments, bromide of camphor must be considered as a tetanic poison. M. Dujardin-Beaumont (*Bulletin Général de Thérapeutique*, February 15), has administered bromide of potassium many times in hysteria; but, in consequence of the difficulty of arriving at the truth with hysterical patients, his results are by no means conclusive. The results were perfectly nugatory in epilepsy; but in genito-urinary affections, such as spermatorrhœa, the bromide of camphor acts more as a camphorated preparation than as a bromide. M. Beaumont used Dr. Clin's dragées in all his trials. They each contain ten centigrammes of the active substance, and from one to ten daily were given. M. Constantin Paul obtained no results from the administration of bromide of camphor in a case of convulsive hysteria. M. Gubler has also treated four cases of hysteria without any marked improvement; he observed that the bromide of camphor, which, however, is a very stable compound, does not pass by the kidneys. The employment of nitrous nitric acid never showed the presence of bromine in the urine. M. Gubler on this subject, however, notes the influence of certain bodies, which he calls vector bodies, and which assist the passage of certain substances through the glands; thus iron does not pass

by the saliva, yet, associated with iodine, it is found in the secretion of the salivary glands. Camphor doubtless has a contrary function; as it does not pass by the kidneys, it prevents the passing of the bromide into the urine.

CLERMONT ON SOLUBLE ARSENIATE OF IRON.—Clermont (*Union Médicale*, February 6, 1875) recommends the substitution of a soluble ferrous arseniate for the insoluble ferric salt. The mode of preparation is not given. The only advantage claimed for it is the certainty of its speedy and complete absorption. [The charge of inutility, which holds good against the official arseniate, lies equally against the soluble compound. Arseniate of iron is only arsenic under another name; the proportion of iron in the compound being too small, as compared with that of the more active element, to produce any appreciable effect. If the combined operation of iron and arsenic be wanted, nothing is easier than to prescribe an adequate dose, say of the perchloride, together with the liquor arsenici hydrochloricus of the Ph.B.—*Rep.*] E. BUCHANAN BAXTER, M.D.

RECENT PAPERS.

Lectures on the Experimental Investigation of the Action of Medicines. By Dr. Lauder Brunton. (*British Medical Journal*, February 13.)

On the Quinquina Calisaya of Java. By M. Bouchardat. (*Bulletin Général de Thérapeutique*, February 15.)

Alcohol as a Medicine. By Dr. Singleton. (*Australian Medical Journal*.)

On Koumiss, and its Therapeutic Action. (*Gazette des Hôpitaux*, February 20, 1875.)

A Case of Poisoning by Homœopathic Camphor. By Dr. George Johnson. (*British Medical Journal*, February 27.)

CORRESPONDENCE.

COLD-POWDERS.

(To the Editor of the LONDON MEDICAL RECORD.)

SIR,—The 'cold-powder' mentioned in your last, p. 102, is, no doubt, an efficacious preventive of cold, or it would not have had so good and so sustained a character for the last six years.

My object in writing is to warn non-medical readers against giving this powder to young children.

It is in fact a strong opiate, one grain in eight, and many children, although they may like the powder, would fare badly, I fear, if they were given even the minimum dose, three grains. Even for an adult, one or two grains of opium is rather a strong remedy to stop a cold. Perhaps better let the ills we have alone, than get into the habit every time the nose begins to run of taking a large dose of opium. I remember that many years ago an inquest was held at Ipswich, in which the medical men swore that they believed the death of an infant was owing to eight drops of syrup of poppies, and a verdict was given accordingly. But there is another danger in the too frequent habit of taking these powders,—I mean that of opium-eating, the most demoralising and degrading of all habits.

C. R. BREE, M.D.

Colchester, February 23, 1875.

A GRANT of 50*l.* has been made from the Worts Travelling Scholars' Fund (Cambridge) to Arthur Marshall, B.A., of St. John's, to enable him to visit Naples for the purpose of using Dr. Dohrn's zoological station and making researches in natural history, with the understanding that he sends specimens to the University, accompanied by reports.

MISCELLANY.

PROFESSOR VON LEYDIG, of Tübingen, has been nominated Professor of Comparative Anatomy in the University of Bonn.

DR. KIRCHHOFF, the newly appointed Professor of Physics in Berlin, will commence his lectures at the beginning of the summer session. The University of Berlin now possesses a rare combination of men eminent in physical science—Dove, Helmholtz, and Kirchhoff.

MR. SAMUEL WILSON, of Ercildoune, who recently gave £1,000. to the Acclimatisation Society of Melbourne, has sent 30,000. to the Chancellor of Melbourne University, intended for the erection of a hall, but free of conditions, and to be otherwise applied if the authorities think fit.

CREMATION.—The Municipal Council of Paris decided in August last that the necessary measures should be taken to open a competition with the object of ascertaining the best practical process of cremation or any other system leading to an analogous result. The Prefect of the Seine has, therefore, nominated a commission to fix the conditions and the programme of the competition.

PRACTICE OF MEDICINE BY WOMEN.—A motion was brought forward in the Belgian Chamber of Deputies on Friday the 19th ult. to allow women, provided with the necessary diplomas, to practise medicine in Belgium. Dr. Vleminckx opposed the motion. The Minister of the Interior said that he could give no opinion on the subject at present.

A NIGHT MEDICAL SERVICE IN MILAN.—The *Annali Universali di Medicina e Chirurgia* for January, says that the want, as yet unsatisfied in Milan, of a regular night medical service, has led some of the leading practitioners of the city to form a private association, under the presidency of Dr. Cesare Fumigalli, in order to make provision for the supply of the want referred to. A house has been taken for the purpose, and is to remain open daily from 11 P.M. to 7 A.M., commencing on February 8.

THE HEALTH OF THE ARMY.—A table published in the *Army Medical Department Reports* for 1872, shows that service in the army—or at all events in the United Kingdom—is by no means an unhealthy occupation, or one very destructive to life. The average annual death-rate per 1,000 for ten years was: in the Household Cavalry, 8.15; in the Dragoon Guards and Dragoons, 7.07; in the Royal Artillery, 8.33; in the Royal Engineers, 6.56; in the Foot Guards, 7.84; in the Infantry Regiments, 7.78; the highest death-rate occurring in the dépôts, where it was 10.92.

THE *Kölnische Zeitung* of February 10 gives an account of the researches of Professor Böhm of Dorpat on revival after cases of poisoning. He succeeded in reviving cats which had been poisoned by injection of potash salts into their veins, after forty minutes' duration of a state which was in no way different from actual death, the action of the heart and respiration having completely ceased. He obtained these results by artificial respiration and simultaneous compression of the breast in the vicinity of the heart. The professor points out the importance of the latter point, which he deems as essential as the action of the lungs. In any case, his researches are of high interest for the relation they bear upon the revival of poisoned persons.

THE INFLUENCE OF OCCUPATION ON LONGEVITY.—The opinions of country medical men all over the State of Massachusetts have, during the past year, been obtained by the board of health of that state with a view to determine the effect of occupation on longevity. It appears that a table collated for twenty-eight years shows the average age of farmers at death to be 65.13 years—figures far in advance of any other callings, and greatly exceeding

the lifetime of active mechanics, not in shops, who, averaging 52.62 years, appear next on the list. The opinions of the physicians consulted also show that the farmer's chances of long life are somewhat greater than those of any other class.

THE ATMOSPHERE OF THEATRES.—It would seem that the wealthy classes, who habitually frequent the stalls of the theatres, not only enjoy greater ease and facilities of hearing and seeing, but also occupy the most healthy situation possible under the conditions of a heated theatre containing a large number of persons. Carbonic acid gas, which is largely generated under these circumstances, behaves itself conformably to the law that the various elastic fluids, whether simple or compound, but without interchangeable chemical action, diffuse themselves uniformly throughout the extent of a limited space, independently of their respective density. Already in 1842, Le Blanc having analysed the air of the Opéra Comique at Paris, after a performance at which about a thousand spectators had been present, found 4.3 per 1,000 of carbonic acid in the highest regions of the theatre, and 2.3 per 1,000 in the air collected at the level of the pit, which established an almost double proportion in the upper regions. Orfila, in analogous conditions, found that out of ninety-five parts of air in a confined space there were 2.50 of carbonic acid above and 2.52 below, an almost equal division. Finally Lassaigne, in 1846, studying the distribution of carbonic acid in the strata of a confined atmosphere, after a lecture of one hour's duration in his amphitheatre, found the air to be composed as follows, the room being about twelve and a-half feet high.

	At Ceiling.	At Level of Floor.
Oxygen	19.80	20.10
Nitrogen	79.50	79.85
Carbonic acid	0.62	0.35

The proportion of carbonic acid in a confined space would therefore be somewhat higher in the highest zones than in the lower regions.

AN IMPORTANT SANITARY IMPROVEMENT.—Of late years, the invention of Reflectors has taken a strong hold on the English public, who seem to, at last, realise the vital importance of living in a pure atmosphere. Thousands of Daylight Reflectors have been and are continually manufactured by Mr. Chappuis, the Patentee, of 69 Fleet Street, London. By consulting him, you will learn the means of dispensing with gas in daytime, and of saving your money and your health.—[ADVT.]

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The London Medical Record.

WEDNESDAY, MARCH 10, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON CATARRH OF THE SMALL INTESTINE IN CHILDREN. BY DR. ALOIS MONTI, OF VIENNA.*

(Concluded from page 126.)

In regulating the diet of artificially fed children, I observe the following principles.

Where badness of cow's milk is the cause of catarrh of the small intestine, I give the milk diluted with fatted veal-broth, in the following proportions: To children under three weeks old, one part of milk and two of broth; to children between one and two months old, equal parts of milk and veal-broth; between two and three months, two parts of milk and one of broth; and to children four months old and upwards, three parts of milk and one of broth. Only in the case of children above one year old is the milk entirely withdrawn for a few days, and soup substituted for it.

In many cases I have made the experiment of substituting, for notoriously bad cow's milk, condensed milk at a corresponding degree of dilution. In many cases it has done good service; but I have often been again obliged to have recourse to other substitutes. In the use of condensed milk, it is of great importance to select the proper degree of dilution with water. According to my experience, the following quantities of water should be added to one part of condensed milk; for newly born children, fifteen parts; for children from two to four weeks old, fourteen parts; from one to three months, thirteen parts; from three to five months, twelve parts; from five to ten months, ten parts.

In cases where excessive dilution of fresh cow's milk was the cause of the intestinal catarrh, this was indicated by dyspepsia, and a suitable degree of dilution was ordered. When the disease arose from the improper use of various admixtures to cow's milk (such as fennel-water or rice-water) these were laid aside. When the improper administration of amylaceous food appeared to be the cause of the malady, it was stopped, and a diet suitable to the child's age was given.

In the cases of older children (from eight or nine months to two years old) attacked with chronic intestinal catarrh, I have withdrawn milk from the diet for some days; and if improvement did not then take place, I have used raw milk, warm from the cow, either exclusively or along with raw meat. I am convinced of the successful results of the warm milk, and can strongly recommend it. In using it I begin with a pint of milk daily, and cause mucilaginous soup and raw meat to be given with

it. If it be well borne, I gradually increase the quantity to a quart daily. With this dose I have repeatedly seen children who had become emaciated almost to skeletons not only cured of their intestinal catarrh in eight or ten days, but also increased in weight by one pound. It is to me incomprehensible how there can be any question of the unconditional withdrawal of milk, since, under the use of warm (*kuhwarm*) milk in cases of chronic catarrh of the small intestines in children from nine months to two years old, I have very often seen the most astounding and brilliant results.

In cases where neither veal-broth with milk, nor properly diluted condensed milk, or warm cow's milk produced improvement, I have always advised that the use of artificial food should be desisted from, and that the child should be given breast-milk. Unfortunately, however, this has not always been possible, and therefore I have made experiments with the various substitutes for milk.

Liebig's soup and its substitutes, such as Löflund's children's food, have in many cases afforded me good results; but I am far from praising them as specifics against intestinal catarrh. Liebig's soup was given undiluted, and the exclusive use of it in children above five months old was in very many cases followed by happy results. Equally good service was rendered by Nestlé's children's meal. It is, however, important to remember that, especially for very young children, its use is not always wely borne.

In cases of chronic catarrh of the small intestine, raw meat was given either simultaneously with cow's milk or in combination with soup. In older children it frequently afforded happy results; and in place of it the juice of meat was given with good effect to small sucking infants.

In cases of chronic catarrh of the small intestine from the use of bad milk, I have many times used cocoa and acorn-coffee, and I have ordered the latter especially for scrofulous and rickety children. For children under one year of age, it is prepared in the same way as ordinary coffee; and, according to the child's age, is either given with an equal quantity of milk, or in the proportion of two or three parts of milk to one of acorn-coffee.

Of cocoa I have, as a rule, used the powder of the beans deprived of their husks; the latter I have used only in some special cases. The cocoa is prepared in the same way as acorn-coffee. For children under one year of age, the cocoa or acorn-coffee is boiled in pure milk. In children under three months, I rarely saw a favourable result; and I must therefore warn against feeding such children exclusively with cocoa or acorn-coffee, as some are accustomed to do. In cases of chronic intestinal catarrh in older children, I give the cocoa or acorn-coffee twice or at most thrice a day; and this mode of administration in combination with other articles of diet, such as Nestlé's food, soup, raw meat, etc., has often done good service. If the cocoa and acorn-coffee be badly borne and pass away undigested with the stools, it is better to abstain from their use.

From what has been said, it is plain that the choice of the diet depends on the individuality of the child, and that, when the intestinal catarrh does not become better under the use of one dietetic method, recourse should be had to another which is perhaps more suited to the age of the child, and most nearly approaches human milk.

Wine was frequently given to children between

* From the author's 'Pædiatric Contributions,' about to be published. *Wiener Medizinische Wochenschrift*, nos. 1 et seq., 1875.

eight months and two years old, suffering from chronic catarrh of the small intestine; red wine containing tannin being preferred. The quantity given was one to two tablespoonfuls daily, according to the strength of the wine.

Baths were ordered in acute intestinal catarrh if collapse set in rapidly. Lukewarm bran-baths were chiefly given, once or twice daily. In cases of chronic intestinal catarrh with dry skin, baths of this kind were given with the view of aiding the change of substance and the circulation. In anæmic children, artificial Franzensbad moor-baths, or baths of rock or sea-salt, often produce successful results.

The medicinal treatment was directed to the symptoms.

In simple acute catarrh of the small intestines, nothing but opium and its preparations, such as the tincture and Dover's powder, were given in a number of cases, both to infants at the breast and to older children. In my experience, the following are the doses of opium suitable, according to the age. For children from birth up to the age of three or six weeks, according to their development, I order one drop of simple tincture of opium in three ounces of distilled water or of mucilage; of this, a teaspoonful is taken every two or three hours. As newly born children are sometimes very susceptible to the influence of opium, it is advisable to warn the parents not to give it during the hours of sleeping. For children from seven to eight months old I order in each two ounces of water or gum mixture, one drop; from eight to fifteen months, two drops; and at the age of two years, according to the degree of development, from two to three drops.

I have, however, avoided the use of this medicine in prematurely born children, in very anæmic and reduced children, in those presenting cerebral symptoms, and in those in whom there was a high degree of hydrocephalus; also in bronchitis, pneumonia, and other affections of the respiratory mucous membrane. Under such circumstances, children readily show symptoms of poisoning.

The susceptibility of children to opium is very variable; for, while in some the smallest doses give rise to symptoms of poisoning, in others opium produces but little effect of this kind, and is tolerated in comparatively large doses. I remember a case of a child two years old, to whom I gave daily two drops of tincture of opium, increasing the quantity to eight drops, without observing the least indication of toxic symptoms. It is my custom always to begin with the small doses of opium above mentioned, and, when it is evident that it produces no toxic effect, I increase the dose; always warning the parents to omit the medicine if the sleep become of longer duration and deeper than usual. Besides tincture of opium, I use Dover's powder in the following quantities: for children under three months, one grain daily in from eight to twelve doses; for children from three months to one year old, one grain in six doses; for children two years old, two grains in six doses.

If the intestinal catarrh be accompanied by symptoms of dyspepsia, and the vomited matters and stools be strongly acid, I combine an alkali with the opium, often, for example, in the following formulæ.

R. Pulveris Doveri gr. j; pulveris oculor. cancrorum gr. xx; sacchari albi 3ss. Divide in partes viij. One of the powders to be taken every two hours.

R. Sodæ bicarbonatis gr. vj; aquæ fontis 3ij; tincturæ opii simplicis gtt. j; syrapi simplicis 3ij. One teaspoonful to be taken every two hours.

When there is no vomiting, but the stools contain undigested casein, I have frequently employed the Paulinia sorbilis and trisnitate of bismuth with successful results. The following are the formulæ which I use.

R. Pauliniæ sorbilis gr. viij; pulveris Doveri gr. j; sacchari albi 3ss. Misce, et divide in partes vj. One powder to be taken every two hours.

Or, R. Bismuthi trisnitratis gr. iij; pulveris Doveri gr. j; sacchari albi 3ss. Misce, et divide in partes vj. One to be taken every two hours.

In cases of intestinal catarrh, without symptoms of dyspepsia, astringents are given with opium, in some such formula as the following.

R. Tincturæ ratanhiæ gtt. xx; tincturæ opii simplicis gtt. j; aquæ fontis 3ij; syrapi simplicis 3ij. A teaspoonful to be taken every two hours.

Or, R. Tannini puri gr. iij; pulveris Doveri gr. j; sacchari albi 3ss. Misce, et divide in partes vj. One powder to be taken every two hours.

When catarrh of the small intestines has been complicated with acute gastric catarrh, attended with vomiting, I have given an acid in combination with opium, or even a small dose of rhubarb.

R. Acidi muriatici diluti Mij — iij; aquæ fontis destillatæ 3ij; tincturæ opii simplicis gtt. j; syrapi simplicis 3ij. One teaspoonful to be taken every two or three hours.

Or, R. Pulveris radices rhei Chinensis, pulveris Doveri, aa gr. j; sacchari albi 3ss. Misce, et divide in partes vj. One powder every two hours.

In cases of acute or chronic catarrh of the small intestines, accompanied with chronic gastric catarrh, loss of appetite, eructations, hiccough, coated tongue, and an offensive smell from the mouth, sulphate of zinc, calumba, and roasted rhubarb were used—the last especially when the stools were colourless. For instance, in the case of children under one year of age, the prescriptions were—

R. Sulphatis zinci gr. j; aquæ fontis destillatæ 3ij; tincturæ opii simplicis gtt. j; syrapi simplicis 3ij. One teaspoonful four or five times daily.

R. Pulveris radices rhei tostæ gr. ij — iv; pulveris Doveri gr. j; sacchari albi 3ss. Misce, et divide in partes vj. From four to six powders to be taken daily.

R. Decocti radices calumbæ 3ij; tincturæ opii simplicis gtt. ij; syrapi simplicis 3ss. One teaspoonful every two hours.

When intestinal catarrh was complicated with mild bronchial catarrh, infusion of ipecacuanha was given with a small dose of opium.

In cases of chronic intestinal catarrh, I abstain from prescribing many medicines, whether mere astringents, or such remedies as calomel, nitrate of silver, logwood, etc., because I am convinced from experience that not much good is obtained by their use. In anæmic children, however, I have frequently observed astonishing results from the use of small doses of iron; but I must warn against too large doses of this medicine. For children under one year, the following were the most usual prescriptions.

R. Ferri carbonatis saccharati, pulveris Doveri, aa gr. j; sacchari albi 3ss. Misce, et divide in partes vj. From two to four powders to be taken daily.

R. Ferri oxidi dialysati gtt. x; aquæ fontis 3ij; aquæ menthæ, syrapi simplicis, aa 3j. From four to six teaspoonfuls to be taken in the course of the day.

R. Liquoris ferri sesquichloridi gtt. vj; misturæ gummosæ 3ij; syrapi corticis aurantii 3vj. Three or four tablespoonfuls to be taken in the day.

I have not used enemata in catarrh of the small intestine. To relieve the colicky pains and moderate the

peristaltic movements, Priessnitz's fomentations are useful in acute cases; in chronic cases, with much meteorism, cold compresses were applied to the abdomen and frequently renewed.

A. HENRY, M.D.

GUBLER ON CINESIALGIA, ESPECIALLY IN MYODIASTASIS, AND ITS IMMEDIATE CURE BY LOCALISED FARADISATION.

M. A. Gubler (*Journal de Thérapeutique*, 1874, pp. 697-898), has written a long memoir on certain painful affections of the muscles, which, according to him, have hitherto been confounded with myosalgia of inflammatory character and neuralgia, but which, by the mechanism of their production, and their subjective or apparent peculiarities, as well as by their course, termination, and the therapeutic agents to which they yield, must be distinguished from all other painful affections of the sensory-motor system. Cinesialgia, or kinesialgia, means, according to him, that state of the muscle in which its contractility cannot come into play without producing locally a keen and sometimes intolerable pain, which is always more or less incompatible with the regular exercise of the motor function. Kinesialgia is therefore not identical with myalgia, which latter means only the pain of muscular rheumatism. It occurs wherever contractile tissue exists, in striped as well as in unstriped muscles, whether animated by cerebro-spinal or by sympathetic nerves.

The conditions which give rise to this symptom are chiefly of a two-fold character, viz., inflammatory and non-inflammatory. Muscular contractions are painful in rheumatism (myalgia, lumbago), sometimes merely in consequence of a chill without rheumatic diathesis, and myositis in general; likewise after contusions, ruptures, and consecutive injuries, or when the fleshy parts are the seat of a break of continuity from so-called spontaneous ulceration. The pain of pleurisy is only kinesialgia, restricted to a small space. Tenesmus, the forcing pain of dysentery, dysuria and vesical spasm from cystitis, cramps in the stomach from simple ulcer of the organ, and other allied affections, may be put down to inflammation; but there are other kinds of pain where no inflammation exists, as, for instance, in pleurodynia, cramp in the calf, and certain forms of tic, etc. The most frequent examples of non-inflammatory kinesialgia, however, arise from a muscular effort or a false movement; and for this state M. Gubler has coined a new word, viz. myodiastasis or muscular diastasis. The Greek word *διάσπασις* signifies separation, and would therefore at first sight appear to be very suitable for signifying a violent divulsion of two articular surfaces, but less so to muscular efforts. The word *διάτρεσις*, on the contrary, expresses tension or distension of the parts, so that the word 'myodiastasis' floated before the mind of M. Gubler as most appropriate for the condition under consideration. But, as he discovered in Castelli's lexicon, that the word diastasis had already been previously used to signify distension, he ultimately resolved to adopt this latter as more euphonic; besides which it had, in his eyes, the additional advantage of being somewhat vague, and therefore corresponding better to the complexity and relative obscurity of the pathological facts.

This traumatic form of kinesialgia is generally owing to an excessive or irregular contraction, resulting from an intentional or instinctive effort; but it

may also come on after a very moderate movement. It is produced by a distension of the muscular fibres, which may proceed to partial rupture, and becomes the evident sign of a kind of muscular sprain, which appears to be favoured by incohesion of the fleshy substance in the state of relaxation. This causes want of synergy in the different portions of the same muscle, or several allied muscles.

Its symptoms are the pain of contraction, and the functional disturbance caused by it. From this it follows that the chief seat of the affection will be where there is much muscular work going on. Thus, for instance, the work of the dorsal muscles is already considerable, simply for maintaining the erect position; but if a heavy weight be added to this, it becomes enormous; and the long muscles of the back and the lumbo-sacral region are therefore principally liable to become the seat of myodiastasis. Out of twenty-six cases which M. Gubler has observed, fourteen were cases of lumbar myodiastasis. After this, it is chiefly the neck and upper portion of the back which suffer, and the ankle-joint.

The fact that this sprain is not very frequently observed, considering the immense number of opportunities for its production, and that it is often noticed amongst people who lead sedentary lives, whenever they have by accident done some muscular work, led M. Gubler to the opinion that it is not only owing to intensity of contraction, but that it also depends upon the manner in which this is effected, and the anatomical conditions of the muscular mass. Thus, myodiastasis has been known to come on on getting out of bed; after sneezing; in ataxy; in sudden movements excited by fright or determined by any kind of reflex actions; that is to say, 'where the surprised system has not the time given it to prepare its means or to regularise its efforts'; and in the rheumatic diathesis. In the latter case, the slightest movement is sometimes sufficient to bring on kinesialgia; while, when the muscular system is in its normal condition, violence is necessary for producing it.

The symptoms of myodiastasis are, first, an acute pain on motion, which is often severe enough to make the patient scream; this is constant, and, as a rule, there is neither pain nor tenderness during repose. In some persons, however, a feeling of malaise and dull pain are felt even when at rest. Sleeplessness is often present, and œdema of the parts may follow the first occurrence of the diastasis. When this is observed, the distension of the muscular fibres has probably been so severe as to cause actual rupture. There are, however, no inflammatory symptoms, such as heat or redness on increased sensibility, which is not surprising if we consider how apathetic muscular substance usually is. Indeed, myositis often remains latent; muscular abscesses are only revealed on the *post mortem* table, and foreign bodies remain in the muscles without exciting inflammatory action. The pain of contraction suffices, however, without there being any vascular complication, to impair or even to suppress the motor functions, not only in the affected part, but also beyond it. In fact, diastasis of a single muscle is capable of immobilising a limb or even the whole body, owing to the solidarity of the different parts of the system in the mechanism of effort. Nobody is surprised to find that it should be difficult to hold up the head when the muscles of the neck have been sprained, or that walking should be troublesome when one has a traumatic lumbago;

but it appears singular, at first sight, that movements of the forearm should cause pain in the neck, or that elevation of the arm should send a shoot of pain into the loins and even the pelvis. On this account the patients either will not move at all, or they manœuvre most ingeniously so as to put into play only the smallest possible number of sets of muscles, and to localise contraction.

These symptoms render the diagnosis easy in the majority of cases. Only where the occasional cause is not very manifest, for instance, when the effort takes place during a deep sleep, or where the patient is subject to the rheumatic diathesis, a doubt may sometimes arise. However, in such hybrid cases the uncertainty of diagnosis will fortunately be without influence upon the choice of remedies, as the same means of treatment will cure muscular rheumatism as well as kinesialgia. There are other morbid conditions in which every movement gives rise to a pain which has nothing in common with kinesialgia, such as sprain of the joints, osteitis, chondritis, synovitis articularis and tendinosa, phlegmasia of serous membranes, or of nerves in the neighbourhood of joints, fractures, rupture of tendons, and fibrous parts in general, foreign bodies lodged in the tissues, calculi impacted in excretory organs and their ducts. But in all such cases the seat of pain is outside the muscles, in the inflamed organs, and there are always other symptoms foreign to diastasis which will render the diagnosis tolerably easy.

The duration of the kinesialgia varies a good deal according to the degree, extent, and seat of the anatomical lesion, and likewise according to individual conditions, such as repetition of movements, rheumatic diathesis, dwelling in a damp and cold place, etc. It sometimes lasts only a day, in other cases a week, and even as much as two months. Gradually the pain becomes dull instead of acute, and a simple feeling of malaise may thus remain for a time. The structural change mostly disappears at the same time with the morbid sensation; in some rare cases, however, there is a tendency to repetition of these muscular sprains, and in one case M. Gubler has seen sciatica come on after it.

The means generally recommended for the treatment of diastasis, such as rubbing, shampooing, hot fomentations, baths, etc., are generally only palliative, and faradisation is not only the most effective but also the quickest treatment. The primary current is generally preferable to the secondary, on account of its being less painful and possessing less tension. As a rule moistened conductors are used, and faradisation of the skin by the wire-brush is only required when the diastasis is complicated with neuralgia.

M. Gubler appears as a rule to have used a very powerful current, for he says that the pain produced by it was in the majority of cases so severe as to make even the bravest patients scream; one asked for mercy during the sitting, and another fainted under the influence of it. It seems to us, therefore, preferable, either to prolong the application and to use a more feeble faradic current, or to employ the continuous current instead, which is far more pleasant than, and equally effective with, faradisation. M. Gubler excuses the application of a powerful current by saying that, if the sitting be short and feeble, the effect produced is not so striking; and no doubt this is quite correct, as far as faradisation is concerned. In many cases one application has been sufficient, but in others two, three, or even five

sittings have been found necessary. 'Success is generally so prompt that at first the patients refuse to believe in a cure, and retain their pitiable attitude and timid expression. But when the individual, emboldened by our assurance, ventured on a few movements which were only just before prohibited by cruel sufferings, the scene was truly comical; the face of the patient offered a curious mixture of stupefaction and joy; and one often saw him, with astonished looks, a smile on his lips, carry out a crazy gesture, as if to prove to himself that he had really recovered the full liberty of his movements.'

A pathogenic theory of myodiastasis has up to the present time no basis in pathological anatomy, and must, therefore, as yet only be founded on more or less reasonable conjectures. Such appear to be 1, stretching and contusion of nervous fibres; 2, rupture of fibrous tissues; 3, dislocation, twitching, and attrition of the muscles; 4, distension and rupture of contractile fibres.

The first of these suppositions would appear to be untenable; for, if there were a nervous lesion, the pain would not completely disappear in the intervals of rest, and come on again only just at the moment of contraction; there might be paroxysms, but still the pain would be continuous, and the attacks would not only be excited by the displacement of the parts.

The second conjecture, of rupture of fibrous tissues, is not any more acceptable, because the force that is required for tearing a tendon or an aponeurosis is so enormous that it cannot be admitted for such cases, since in many of them the muscular effort has only been slight. With regard to the third, viz., dislocation of muscular fibres, it appears not impossible, but hardly probable. In certain thick muscular bundles, such as the gastrocnemius, deltoid, and gluteus, we can easily conceive the gliding of a bundle which forgets to contract, between two bundles which have become rigid by an energetic contraction, and which expel it as a cherry-stone pressed between two fingers would be; the passive bundle, which would be compressed by the active portions of the muscle, might suffer a kind of contusion or bruise, which would be accompanied and followed by pain.

Still all this is only speculation; moreover, the mechanism of a partial dislocation is difficult to understand in homogeneous muscles with parallel fibres; and the idea of attrition and smashing of muscular fibre does not accord with the promptitude and constancy of the therapeutical results.

The only really satisfactory hypothesis therefore appears to be, to assume distension of muscles with or without rupture of some contractile fibres. The great ease with which muscular bundles may, under certain circumstances, become distended or torn, is caused by a special modification of the contractile substance which has hitherto escaped the attention of pathologists. The conditions of repose or activity of the muscular fibre cause peculiar variations in its molecular state and physical qualities, such as elasticity, extensibility, and cohesion. Dead muscle resists traction so little, that its force of cohesion is overcome by a few pounds' weight only. The cohesion of muscular fibres during life, even in the state of relaxation, is no doubt greater; nevertheless, there is a vast difference between the tenacity of muscles hardened by contraction and in the flaccid state. In view of this fact, the explanation of muscular sprain does not present any difficulty; for it suffices that a muscle or portion of muscle should be in the state of relaxation and relative incohesion, in

order to allow distension or tearing by a feeble traction. This condition is frequently brought about from a want of synchronic action between synergic muscles and the different portions of the same muscle. This want of harmony causes occasionally myodiastasis at the moment of awaking, or when movements are produced by reflex action, under the influence of fright, or when occasioned by a peripheral excitation, as in sneezing. Why does a muscle not act in unison with its synergics? Why does a portion of a muscle remain inert when the rest enters into contraction? No doubt because the tardy muscle or bundle responds badly to stimulation, or because the nervous discharge arrives at it too late or with too little intensity. If a muscle be at all large, its different portions are not animated by the same motor nerve-fibre, and may therefore be considered as so many distinct and autonomous muscles. This view is quite accepted for the digastric and the straight muscles of the abdomen; but it seems also rational if applied to other muscles, especially if we consider that in many muscles the bundles are intersected by partial fibrous formations which render them really polygastric. These partial intersections have not sufficiently attracted the attention of anatomists. They are found in the gemelli, the rectus femoris, the glutæi, sartorius, and many others. This anatomical arrangement, joined to the presence of a distinct nervous branch in each muscular segment, assures to the different portions of a muscle a reciprocal independence, which allows us to consider them as entire muscles. When, therefore, in a muscle which is divided into two halves by a fibrous line, one of the ends contracts while the other remains inert, this latter will undergo a stretching which will surpass the limits of its elasticity and produce distension.

JULIUS ALTHAUS, M.D.

JENNER ON THE ETIOLOGY OF TYPHOID FEVER.

Sir Wm. Jenner's presidential address to the Clinical Society (*Lancet* and *British Medical Journal*, Feb. 20) is so full of valuable observations and practical suggestions, that it is almost impossible to make a satisfactory abstract of it. We content ourselves therefore with giving an abridgment of what is perhaps the most interesting part, viz., his remarks on the etiology of typhoid fever.

It is said by some that typhoid fever is undoubtedly contagious, and that, being contagious, it can never originate *de novo*; that is to say, as it can be proved in some cases to have its origin in the entrance of the emanations of the sick into the previously supposed healthy body, it can never arise in any other way. On the other side, while admitting that the disease may be spread by the emanations from those suffering from it, it is said that any admixture of sewage (decomposing animal excreta) with fluids used for drinking purposes, although no typhoid excreta are present, will produce typhoid fever *de novo*.

One general assumption made by those who advocate the sole origin of typhoid fever by contagion requires special consideration. It is this, that no admittedly contagious disease ever originates in any other way than by contact with the emanations from the sick, and therefore that typhoid fever, which spreads, as is generally admitted, by contagion, can

be spread in no other way. Sir William Jenner says that his own prejudices are strongly in favour of the specific origin of this in common with all contagious diseases, but he thinks that the weight of evidence and of argument are rather on the other side. Of small-pox, for example, the most contagious of these diseases, we may fairly conclude that it never originates *de novo*. Sir William Jenner does not hesitate to say, notwithstanding Dr. W. Budd's assertion to the contrary, that it is rare that an isolated case of small-pox cannot, with due care, be traced to its probable source, and when a case has been imported into a locality previously free from the disease, new cases almost invariably spring up in its vicinity; so that the contagious origin is proved first by tracing the case to its source, and secondly from the new cases which spring up from the first isolated one.

But when we pass to the other end of this class of diseases, we find an unexpected difficulty in maintaining this theory of specific contagion. Diphtheria and erysipelas of the head and face are both undoubtedly contagious diseases, though much less contagious than small-pox; it is more common for the healthy who are exposed to the emanations from the sick to escape these diseases than to escape small-pox under the same circumstances. Now we should expect that the more contagious a disease—that is, the less the quantity of the poison needed, the shorter the time of exposure to the poison necessary, and the less preparation required in the system of the person receiving the poison—the more difficulty we should have in tracing it back to its primary source; whilst with the diseases of this class which are the least contagious,—which require for their spread a longer exposure or more decided dose of the poison, or the administration of the poison in a particular way by a special channel—we should expect that we should more easily be able to trace every new case to its origin, that is, if every new case be really due to exposure to the emanations from the sick of the same disease. But this *à priori* reasoning does not agree with our experience; for, while in regard to small-pox it is the exception not to be able to trace the source of the contagion, in regard to diphtheria and erysipelas of the head and face it is exceptional that the first case can be traced back to contagion. Typhoid fever, like diphtheria and erysipelas, holds a low position as regards its contagious quality; the poison must be in large doses, or long breathed, or must be taken into the stomach in order to propagate the disease; therefore it ought to be possible, in the majority of cases, especially in country places and isolated houses, to trace this disease also to its source, if the source be in every case the excreta or emanations of those suffering from the disease. But, in fact, in a very large proportion of the solitary cases observed it has not been possible thus to trace its origin; and not only so, but there are a sufficient number of cases recorded to make it probable that the admixture of sewage, not typhoid, with drinking-water may produce the disease *de novo*, and most medical practitioners have met with cases in which the breathing of greatly diluted sewer-gas continuously for some time, especially at night, has also seemed to be able to produce typhoid fever *de novo*.

With reference to these three contagious diseases which cannot in many cases be traced to pre-existing cases of the same disease, there are three points worthy of notice. First, they are more liable than

the most contagious, as small-pox, measles, and scarlet fever, to recur in the same individual. Secondly, when not referable to contagion, each is pretty constantly referred to one particular cause—diphtheria to exposure to cold; erysipelas to exposure to cold when the individual was depressed from fatigue, mental or moral causes, fasting, etc.; and typhoid fever to foul gaseous emanations or to contaminated water. Thirdly, certain primary constitutions seem more prone than others to suffer from these less contagious diseases; whilst all people seem to be susceptible when exposed to the poison of scarlet fever, of measles, or of small-pox, the other three diseases occur especially in certain constitutions. Diphtheria, for example, comparatively a rare disease, will occur in several members of the same family at long intervals of time and in localities widely separated, thus showing a great constitutional proclivity to the disease.

In concluding this portion of his address, Sir William Jenner said, 'I do not say, nor do I think, that the arguments and facts which can be adduced in favour of the origin *de novo* of any of the contagious diseases are conclusive; but I do say, and maintain, that they are strong enough to make us pause before we accept the theory advocated by Dr. William Budd, and to which Professor Tyndall has lent the weight of his great name, a weight, however, which would be greater on the point in question if he had himself studied the subject on which he has, I am sorry to say, addressed the public in a strain calculated to check unprejudiced individual inquiry. To my mind the question must be held to be still *sub judice*: new facts, sceptically scrutinised and carefully recorded, are required to settle it. It is only in exceptional instances that cases free from all possible, or at least from all probable, sources of error, can come under notice. Such cases can only be seen in private practice, and especially in country practice; and it is for this reason that I dwell particularly on this subject to-night, my desire being to urge the careful observation and reporting of these isolated cases.'

J. W. LANGMORE, M.D.

PATHOLOGY.

GONZALES ON CYSTICERCUS IN THE BRAIN IN A CASE OF PROGRESSIVE PARALYSIS OF THE INSANE.—The *Gazzetta Medica Italiana-Lombardia* for January 16 contains a paper read before the Psychiatric Society in Milan, by Dr. E. Gonzales, resident medical officer of the Lunatic Asylum in that city, on a case in which cysticerci were found in the brain of a patient who had died of progressive paralysis.

The patient, D. A., aged forty-one, was admitted into the General Hospital of Milan on March 10, 1871, suffering from symptoms which led to the diagnosis of general paralysis of the insane. In August, his condition being unimproved, he was removed by his wife, but was again admitted in October, and in March, 1872, was transferred to the Asylum, where the diagnosis was confirmed. On June 17, he died of syncope consecutive on an epileptic fit.

In 1863, having previously enjoyed good health, he had a sudden attack of epilepsy. The attacks at first recurred at long intervals, and were sometimes followed by sopor, sometimes by fits of mania.

From being mild and affectionate, he became violent and irascible, and negligent of his duties. His intellect, at first clear, became confused; the epileptic attacks became more frequent, and he fell into a state of general emaciation, with stuttering and uncertainty of gait. He had an idea that he was the possessor of great wealth, and that, though of known honesty, he was accused of petty thefts. His wife, to whom he was formerly much attached, he regarded as the cause of his disgrace. He was subject to hallucinations of vision and to insomnia. He was treated by nitrate of silver and other remedies, both in the General Hospital and in the Asylum, but without any improvement of his condition.

At the necropsy, which was made thirty-six hours after death, the dura mater was found to be somewhat thickened and firmly adherent to the cranium; the pia mater was congested. The cerebral convolutions were dense, and pressed against each other; the anterior cases were much flattened, as if atrophied. Half of the convex surface of both hemispheres was occupied by ten more or less transparent cysts of various size and shape, most, however, being round, and of semi-solid consistence. They were of a pale yellow colour, and were partly adherent to the pia mater and partly embedded in the cerebral substance, from which they were removed by enucleation. The lateral ventricles were distended with serum; the right contained seven cysts attached to the ependyma, and in the left was a cyst floating free in the fluid. In the left Sylvian fissure there were five cysts, joined together in a cluster. Resting on the medulla oblongata, between the foramen cæcum and the point of decussation of the pyramids, was another cyst; on removal, it left no depression. The medulla oblongata was of firmer consistence than normal, and it was somewhat of a straw colour; the cerebellum was normal. The lungs were oedematous and hyperæmic; the heart was healthy. Nothing abnormal was found in the abdominal and pelvic viscera.

The cyst removed from the medulla was examined microscopically under the direction of Dr. Visconti; and the head of a cysticercus, furnished with a double row of hooks and four lateral suckers, was distinctly seen. The medulla oblongata presented alterations which were also found in five other cases of general paralysis. The nerve-cells were changed in form, and consisted of a homogenous bright substance, without any nucleus or nucleolus; the margins in some cases being well defined, in others imperfectly.

Dr. Gonzales remarks that his case is interesting on account of the rarity of free parasitic cysts in the cavities of the brain, and because hitherto there has been no recorded case of cysticercus located on the medulla oblongata, nor of association of the parasite with progressive paralysis of the insane.

The author regards the progressive paralysis as not having been caused by the cysticerci, but by the pathological changes in the medulla oblongata.

A. HENRY, M.D.

RECENT PAPERS.

Case of Hydrocystis Capitis occurring in a Child after Birth. By Dr. Mc Rae. (*Edinburgh Medical Journal*, March, 1875.)

On a Case of Necrosis of the Jaws from Phosphorus. By Dr. J. J. Charles. (*Edinburgh Medical Journal*, March, 1875.)

MEDICINE.

FRÄNKEL ON A CASE OF MULTIPLE PARALYSES OF CRANIAL NERVES.—Dr. B. Fränkel, of the Augusta Hospital, Berlin, relates the following case in the *Berliner Klinische Wochenschrift*, January 18, 1875. The patient, a clerk, twenty years of age, had suffered from a discharge from his right nostril for several years, which he had observed was not so pervious as the left. In February last he experienced acute pains on the right side of the forehead, accompanied with attacks of a fainting character. About the end of April a tumour was observed at the right angle of the maxilla, and the patient, who had been slightly deaf from childhood, had entirely lost the sense of hearing on the right side. In this state he was admitted into the hospital, and was taken by Dr. Fränkel to the sitting of the Berlin Medical Society for inspection by the members.

On examining the mouth, it was observed that the right side of the tongue was atrophied and paralysed. The apex of the tongue was protruded towards the right side. If the patient made grimaces, it was seen that the muscles supplied by the facial nerve possessed their normal innervation. On looking further into the cavity of the mouth, it was seen that the uvula and soft palate were drawn to the left of the mesial line. This deviation was more distinct when the patient pronounced *a*. By a laryngoscopic examination the epiglottis was seen to be inclined backwards, with its right edge lower than the left. The right side of the larynx was covered with mucus; the right vocal cord, relaxed and curved, had the same appearance as is presented in a corpse. The right arytenoid cartilage was inclined forward, and in this state the parts remained immovable during both inspiration and expiration, and in phonation, so that the left vocal cord was seen to project over that of the right side during these acts. Here there was paralysis of the lingual, palatal, and laryngeal muscles. The movements of the hyoid bone and larynx in swallowing were normal. The position of the hyoid bone was horizontal. The upper angle of the thyroid cartilage was rather deeply turned to the left, but this may have been owing to a slight curve in the neck, which the patient had from infancy. The movements of the head were equally performed. The sensibility of the skin was equal on both sides, except in a circumscribed space of the right auditory passage. Reflex coughing could be excited in the left but not in the right meatus. The surface was sensitive at the tip of the tongue, the lips, and inside of the cheeks on the right side, but gradually diminished towards the root of the tongue, and was entirely wanting in the fauces on the right side. In laryngoscopic examination a sound could be passed down to the usually sensitive laryngeal surface, on the right side, without exciting reflex action. Mastication and deglutition were greatly impeded by the inability to control the position of the morsel on the right side, so that to avoid choking he was obliged always to keep the food to the left side of the mouth. Taste was also impaired in the parts insensitive to touch.

Dr. Fränkel considers that this case corroborates the ageusia, described by Hirschberg (*Berliner Klinische Wochenschrift*, 1868, no. 48), from paralysis of the trigeminus, and supplies a fresh proof that taste is the result of the distribution of the fifth

pair and chorda tympani to the anterior part of the tongue, and of the glossopharyngeal nerve to its posterior portion.

With reference to the senses, hearing, it has already been stated, was impaired; visual power was perfect; smell was slightly feeble on the right side, possibly from the narrowness of the nostril preventing free inspiration. Dr. Fränkel thus summarises the phenomena related: total paralysis of the right hypoglossus, of the right glossopharyngeal, and of the right vagus, as far as concerns the laryngeal superior and most probably the auricularis. As regards other branches of the vagus, there was no functional disorder of the lungs or of the abdominal viscera. The pulse was feeble, and averaged from 110 to 120 in the minute.

The interest of this case is further enhanced by the observation that there were indications of paralysis of the superior ganglion of the sympathetic. The left pupil had become smaller than the right. There was no strabismus, but a distinct exophthalmia of the right side. The temperature of the right external auditory passage was slightly above that of the left. The surface of the tympanum was depressed and injected. The mouth was constantly filled with saliva.

The cause of these multiple paralyses was doubtless the tumour already mentioned as existing under the angle of the superior maxilla, under and in front of the sterno-cleido-mastoid muscle. It was of a firm consistence, elastic and movable, of about the size of an apple; it extended into the pharynx, which it pressed forward, occupying also the nasal fossa. The point of a catheter passed into the nostril was turned upwards and inwards to the left ere it reached the back of the cavity. This tumour bled on the slightest touch, and had a red puffy mucous appearance.

W. B. KESTEVEN.

WEBB ON A REMARKABLE CASE OF ANEURISM OF THE AORTA.—Dr. W. H. Webb of Philadelphia gives the details of a case of aneurism of the arch of the aorta, which is chiefly remarkable on account of its long duration; the survival of the patient sixteen days after perforation of the chest-wall; and the size of the clot, which plugged the perforation, and protruded beyond the level of the skin.

The patient, a woman about forty-three years old, at the time of her death, had been under the observation of Dr. Da Costa for nearly eight years, suffering from aneurism of the arch of the aorta. The disease had probably commenced three years previously to her seeking advice, after a severe fright and sudden exertion; there was no other obvious cause of vascular disease to be discovered. Even when first examined, the patient presented bulging of the upper part of the sternum, and other marked signs and symptoms of thoracic aneurism. There was nothing specially remarkable about these.

During the first four years of the woman's attendance at the hospital, the gradual enlargement of the tumour was watched. In the course of the five years' attendance the skin over the sternum, where the tumour was pointing, became discoloured. During the sixth year the tumour was accidentally struck 'by a large scrubbing-brush, and diminished considerably in size.' A few months later, it increased once more in size, rather suddenly. During the next twelve months, there was no material change in the condition of the patient.

In January, 1874, after the patient had been more than seven years under treatment, the symptoms became alarming. At the most anterior portion of the sternal tumour there was a spot about three-quarters of an inch in diameter, covered by the merest film, which looked as if ulceration were taking place, and the current of blood could be felt beneath it. To this spot a plaster was applied, consisting of equal parts of emplastrum opii and emplastrum aconiti. About a month later, a spot of blood was found upon the woman's 'under-garment;' it had oozed through the pores of the sheepskin upon which the plaster was spread. Five days later, 'the tumour ruptured externally at its most anterior portion, and it was stated that the stream of blood was about the size of a lead pencil, and that after she had lost about a quart of blood it suddenly stopped.' The hæmorrhage returned at intervals of one or two days during the next sixteen days, at the end of which time the patient died of exhaustion, without any suddenly fatal loss of blood. She had suffered excessive pain since the rupture. It had been found, on examining the tumour three days before her death, that a mass of laminated fibrinous clot protruded from the rent in the wall of the sac anteriorly, and that blood-serum had been oozing through it. This mass increased before the fatal termination until it was ten inches in circumference, and protruded three inches beyond the sac.

On *post mortem* examination, an aneurism was found, commencing about one and a-half inches above the aortic opening, and terminating at the beginning of the thoracic aorta, involving the whole of the arch. The innominate artery was much dilated; a second dilatation existed at the root of the right common carotid; and in the third portion of the arch, on its outer and left side, was another marked dilatation as large as half a walnut. The relations of the aneurism to the anterior wall of the chest are thus described. 'The anterior margin of the sac is attached to the sternum at the point of erosion, and when it became perforated, and until the skin ruptured, the skin and cellular tissue formed the upper and anterior portion of the sac-wall. The whole of the sac is filled with a very solid clot, which extends through the sternum; and by its pressure forwards the skin and cellular tissue were absorbed, until the skin parted, when it protruded, thus plugging the orifice.' The clot burrowed for a considerable area around the opening in the sternum. The heart was one-third less than the normal size; the valves were competent.

The treatment of the case varied considerably during its course. When first seen, the patient was ordered to rest as much as possible, but this she would appear not to have done, and in the sixth year of her illness she was confined of a child; the labour is reported to have had no influence upon the tumour. Iron and digitalin were taken irregularly for the first three years; ergot internally and an opium plaster locally were next prescribed for a year, and for the next three years iodide of potassium was given in doses varying from five to ten grains three times a day. But this also was for some time taken irregularly. Opium, belladonna, cannabis Indica, and veratrum viride, were severally combined with the iodide from time to time. When the rupture of the aneurism took place, a plaster had been applied as described, and liquor ferri subsulphatis dilutus (two parts to one of water) was found to control the oozing. Morphia was now freely given.

The local application of the iron salt appeared to check the hæmorrhage for the time at each return; but at last the coagulum was washed away as soon as it was formed.

WILSON ON SUDDEN DEATH FROM ANGINA PECTORIS.—Dr. John Wilson describes a case in which sudden death, under peculiar circumstances, was probably due to angina pectoris (*Edinburgh Medical Journal*, September, 1874).

A farm servant, aged twenty-three, went out of a warm room into the intensely cold air of a January night, apparently quite well. About twenty minutes later he was found lying dead on his face, with his arms outstretched.

Post mortem, the heart lay flaccid in the pericardium; it was of a red flesh colour, and had a slight deposit of fat about its base. The cavities were found empty; all the valves, on minute examination, were found quite healthy. While the walls of the ventricles were a degree thicker than usual, those of the auricles were abnormally thin. There was no disease of the large vessels or of the coronary arteries. The heart was removed for microscopic examination. The lungs were congested and partly pneumonic. The condition of the other viscera was not remarkable.

The history given of the man was, that on the day preceding his death he had complained to his brother that he had been seized with an intense pain in the breast, striking through to the back, and so severe had it been that he had to stand and hold his breath until it passed away. For two or three weeks previously, he had been suffering from a cold and a hard cough. His health was believed to have been perfect up to that time. Before leaving the house, as described, the man had partaken heartily of a supper of tea and bread. At the moment of his death, it would appear that he was walking downhill with an empty pitcher in each hand.

Dr. Wilson is of opinion that death occurred in this case from angina pectoris. He remarks that the age, twenty-three years, is one of the earliest on record. He suggests that the sudden change of temperature, and exposure to the full force of a bitterly cold north wind, may have caused a reflux of blood from the external surface of the body to the heart and lungs, and induced the attack.

J. MITCHELL BRUCE, M.D.

FORREST ON CHRONIC GASTRALGIA CURED BY THE NITRITE OF AMYL.—This case, reported by Dr. W. H. Forrest in the *New York Medical Journal* for February, 1875, was a very acute one. Doses of three drachms of Magendie's solution of morphia had failed, as had also a great number of other remedies. Dr. Forrest then first tried the nitrite of amyl by inhalation, and, obtaining a slightly relaxing effect only, gave the drug by the mouth in a dose of two and a-half minims. The first method, although exhibiting most of the characteristic effects of the medicine, failed to stop the pain, which end however, was obtained by the second, in precisely eight minutes. The patient walked off, declaring that he felt peculiarly strong. The spasm, thus cut short, remained absent for about twenty-four hours, but the pain returned in full vigour. The experiment was again resorted to in like manner as at first, the dose by the mouth being increased to three-and-a-half minims. The pain ceased as before, and did not return to an extent sufficient to cause anything

but a slight annoyance. In order to relieve the sleeplessness of the opium-habit, chloral and bromide of potash were given with good effect.

Dr. Forrest then made one attempt to remedy the anæmia from which the patient suffered, by a mild chalybeate, but desisted, and left his re-establishment to nature. The patient made rapid progress, and at the time of the report was well able to do light work.

RECENT PAPERS.

The Diagnosis and Treatment of Neuralgia; and especially on Subcutaneous Injections of Morphia. By Dr. Von Pitha. (*Allgemeine Wiener Medizin. Zeitung*, nos. 1, 2, 3, 4, 5, 6 and 7, 1875.)

Studies on Sea-Sickness. By Dr. Nagel. (*Allgemeine Wiener Medizin. Zeitung*, nos. 1, 2, 3, 4, 6 and 8.)

Case of Empyema treated by Drainage and Repeated Injections. By Dr. May Figueira. (*O Correio Medico de Lisboa*, January 28.)

Animal Heat in Fevers. By M. Brouardel. (*Le Mouvement Médical*, February 27, 1875.)

Experiments on Digestion. By Mr. R. A. Smith. (*Philadelphia Medical Times*, February 13.)

The Therapeutics of Functional Headache. By Dr. Hamilton. (*Philadelphia Medical Times*, February 3.)

Granular Phthisis simulating Typhoid Fever, Tubercles of the Choroid, Diagnosis by the Ophthalmoscope. By M. Stocesco. (*Le Progrès Médical*, February 27.)

On Troubles of Innervation in Glycosuric Patients. By Dr. Bouchardat. (*Bulletin Général de Thérapeutique*, February 28.)

A Case of Chloroform Narcosis resuscitated by Nélaton's Method. By Dr. M. H. Jordan. (*American Practitioner*, February, 1875.)

SURGERY.

VERNEUIL ON THE TREATMENT OF ANEURISM.—In the *Bulletin de Thérapeutique*, October 25, 1874, we find an interesting *résumé* of a communication from M. Verneuil, to the Société de Chirurgie at their sittings of July 29 and August 5. This comprised the history of seven cases.

The first was that of a man aged forty-two, suffering from a popliteal aneurism of only a few weeks' duration. Flexion of the limb suspended the pulsation of the tumour. This treatment (whether voluntary or forced flexion is not stated) was continued during fifteen days in an intermitting manner, as the patient could bear it, from one to three or four hours each day. The tumour diminished considerably, and lost its bruit, but continued to pulsate. Finding now that complete extension stopped the pulsation, M. Verneuil placed the limb in an immovable apparatus in the extended position, and the patient walked on crutches; but three weeks of this treatment produced no benefit. Then the patient resolved to submit to forced flexion for eleven hours, in sittings of half-an-hour at a time, with intervals of two or three minutes. This rendered the cure complete and permanent.

Case 2 was also one of popliteal aneurism, in a man aged thirty-nine, with atheromatous arteries. Forced flexion was employed five or six times a-day, in sittings of from ten minutes to half-an-hour, for twenty-two days, the patient taking digitalis and chloral. This having failed, the femoral was compressed in the groin with a shot-bag of 9 lbs. for six hours a-day, but it is not said for how many days; and then with the finger for eleven hours on two successive days. The tumour was very much reduced, but not quite cured. The cure, however, was completed during the next four days by alternations

of forced extension, in sittings of ten minutes, compression with the shot-bag in sittings of twenty-five minutes, and forced flexion in sittings of fifteen or twenty minutes.

Case 3 was one of traumatic aneurism of the radial in the middle of the fore-arm, which was cured by the application of instrumental compression to the radial at the upper third of the fore-arm for twelve hours on the whole during two days, assisted by the patient himself compressing the brachial at the bend of the elbow during the intervals.

Case 4 was one of traumatic aneurism of the superficial palmar arch, caused by an incision which had been made for the relief of diffuse inflammation. (The aneurism was attributed by M. Verneuil not to direct wound of the vessel, but to inflammatory softening of its walls.) As soon as all active general symptoms had subsided, an attempt was made to treat this by immediate compression on the tumour, compression of the radial and ulnar arteries, and compression of the brachial, all at once. This was carried on for fifteen days; but, it did not cure the aneurism, which, on the contrary, threatened to burst. Solution of perchloride of iron (twenty per cent.) was then injected. The brachial was compressed, and four drops were first injected, and then four minutes afterwards a similar quantity. In a quarter of an hour the expansile pulsations had ceased, and in a month the cure was perfect.

Case 5 was one of spontaneous popliteal aneurism in a man sixty-five years old. Forced flexion was tried, but without benefit; nor were digital compression in the groin and compression with a shot-bag more successful; and this failure was attributed to atheroma of the arteries. The patient complained much of the pain of the compression. Coagulating injections were then tried; first, of six drops of a solution of fifteen per cent. of perchloride of iron, which produced some amelioration; but a month afterwards the aneurism was as before; next, of seven drops of a solution of twenty-two per cent., which was painful, but produced a good deal of coagulation; and, finally, of eight drops of 'iodo-tannic solution,' compression being made above and below the sac for one hour and twenty-five minutes. This operation was disastrous; the leg mortified, evidently from embolism of the tibials, pyæmia supervened, and the patient died fifteen days afterwards. M. Verneuil blames himself in two particulars for the treatment of this case, viz. (1) that he did not persevere with the use of the perchloride instead of the iodo-tannic solution, and (2) that he did not amputate at once on the occurrence of gangrene. Besides (as he most truly observes), the case shows that, on the failure of compression, it would have been safer to have recourse to the ligature.

Case 6 was one of spontaneous popliteal aneurism in a man thirty-two years of age. The aneurism had existed for a year, and was of very large size. Flexion not having much effect on the aneurism, the treatment by pressure with a shot-bag in the groin was commenced, and this was continued in an intermittent manner for some days for about two hours a-day, but the sac continued to increase, and became inflamed, the inflammation extended to the knee-joint, and the whole thigh began to be cedematous and inflamed. Amputation was performed as a last resource, but the man died in a few hours. The extreme pain which preceded this fatal inflammation appeared to depend on the pressure which the rapidly growing aneurism was found to be making on

the peroneal nerve. The sac of the aneurism was very thin, and was filled with soft clot. In commenting on this case, M. Verneuil says that either total compression should have been made so as to fill the sac at once, or the ligature should have been used. [He intimates also that the old method by opening the sac might possibly have been best, but gives no reason for this conjecture. As the man was in perfectly good health before the commencement of treatment, there seems no reason why the Hunterian operation should not have proved successful, as it has done in many other cases of aneurism, even more voluminous and more rapidly growing than this.—*Rep.*]

Case 7 was one of aneurism of the femoral in Hunter's canal, in a man aged forty-seven, following on the kick of a mule, and believed to be diffused, that is, to have followed the rupture of the sac of an ordinary aneurism. Compression by means of a shot-bag having been tried, and failed, before his admission into hospital, and the man being in a bad state of health, with inflammation of the knee-joint, and œdema of the leg, the femoral artery was tied at once. The operation was performed 'below Poupert's ligament,' i.e., we presume, on the common femoral artery. The patient slowly recovered, and the general health became re-established. The tumour was reabsorbed without suppuration in five months. From this and some of the other cases, M. Verneuil concludes that pressure on the vein, causing capillary obstruction, and hence increased arterial tension, is the cause of rupture in many cases of aneurism, and that this danger and that of inflammation of the sac may often be averted by the timely use of the ligature.

M. Verneuil thus sums up his series.

Compression succeeded twice and failed four times; it was abandoned in two of the cases on account of the pain, and in the other two because it produced no good effect. M. Verneuil believes that it is better borne when made with a bag of shot than with any other mechanical means. [Few surgeons will share this opinion, unless by 'mechanical means' the author intends to exclude digital pressure, which is certainly more easily tolerated by most people; and, even if restricted to mechanical pressure in the narrower sense, the opinion is one on which much doubt is permissible.—*Rep.*] Pressure in general, M. Verneuil says, 'is an imperfect method, and sometimes hurtful.'

Flexion was twice beneficial, once curative by itself. In two other cases it failed.

Extension is, in M. Verneuil's opinion, useful to a slight extent as an adjuvant.

Coagulating injections were only once successful (viz. in Case 4). The method is difficult to practise and very dangerous. In old people it should not be tried. The perchloride of iron is the only agent which should be employed.

The ligature in the only case tried was extremely successful, but M. Verneuil's personal experience of this treatment is not sufficient to enable him to speak from his own experience. He thinks it dangerous to attempt primary union of the wound. [We have no doubt that further experience would reverse this opinion.—*Rep.*]

Amputation should be reserved for cases of the most grave nature—gangrene, diffuse inflammation, arthritis, rupture of the sac, and hæmorrhage; but when the indication is distinct, the operation should not be deferred.

As an appendix, a communication is given from M. Demarquay to the Société de Chirurgie, on the treatment of aneurism in old persons—the conclusion of which is that, when the arteries are atheromatous, both the ligature and flexion are very dangerous, and that the best plan is to employ digital pressure in a mild form, assisted by elastic support to the aneurism.

Finally, the narrator of the case quotes from the *British Medical Journal*, August 8, 1874, the conclusions of the present writer on the treatment of popliteal aneurism, which nothing in the present series of cases tends to negative. The chief points are as follows.

1. In rapidly growing aneurism with thin sac, especially if traumatic, the ligature should be early practised (see Case 6).

2. The success of the ligature has been much greater in the hospitals of Great Britain of late years than the published statistics show to have been the case in earlier times.

3. In hospital practice compression has not been more successful than the ligature—though no doubt it might be made so by greater care in its application.

4. It is well not to insist too long on compression, if it do not at once produce some considerable improvement.

5. Flexion should be tried when it acts powerfully on the pulsation of the tumour, but should not be used in a painful manner, nor too long persevered in.

6. There is no proof of the utility in popliteal aneurism of the less common methods of treatment, such as galvanism, coagulating injections, manipulation, the temporary ligature, or the introduction of foreign bodies.

MARQUES ON THE CURE OF AN ANEURISM OF THE RIGHT EXTERNAL CAROTID ARTERY BY DIGITAL COMPRESSION.—Dr. Marques, of Lisbon, lately reported this case to the Academy of Medicine of Paris (*Gazette Médicale de Paris*, February 6, 1875, and *Gazette Hebdomadaire*, February 5). The case is also published at length in the *Correio Medico de Lisboa* for January 9.

The patient was a gentleman, aged thirty, resident in Bahia. About November, 1873, he began to feel pain in the right side of the neck and the right ear. The pain was intermittent, and did not give him much trouble. On August 31, 1874, a medical man saw him for the first time and detected an aneurism. An attempt was made to cure him by digital compression on the common carotid, for nine hours a day during the first ten days, and for ten or twelve hours during the next twenty-nine days, aided by the application of a bladder full of ice to the tumour, and the internal administration of digitalis and hydrate of chloral. Under this treatment the tumour became much harder and somewhat smaller, but still pulsated. He embarked for Lisbon on November 6. He suffered a good deal on the voyage from sickness, which he attributed to the use of digitalis, and which ceased on his giving up taking that drug. He continued to use chloral. From this time he suffered a good deal from pain in the tumour and in the ear; it increased much in intensity, but ceased on the use of some soothing lotions after his arrival in Lisbon. He was admitted into the Maison de Santé at Lisbon on November 15. The tumour at this time was oval, measuring seven or eight centimètres (rather more than two inches)

in the smaller diameter, with its lower end behind the angle of the jaw and its narrower in connection with the right lobe of the thyroid gland below, touching the thyroid cartilage on its inner and the sterno-mastoid muscle on its outer side. It had the usual pulsation and bruit of aneurism, which were at once stopped by compression of the common carotid. The veins of the part were somewhat dilated. There were no morbid sounds in the heart or lungs. The diagnosis was 'a false consecutive aneurism,'* of the right external carotid; and it was agreed that a renewed attempt should be made to cure it by compression. This treatment was commenced on November 21, after six days' rest and medical treatment. The compression was made for seven hours by the medical men and male nurses of the *Maison de Santé*, the patient being in the sitting position. The common carotid was compressed against 'Chassaignac's tubercle,' *i.e.* the anterior tubercle of the transverse process of the fifth cervical vertebra. In half an hour the patient became giddy, and soon afterwards fainted; and after this the compression was made in the horizontal posture. After forty days of treatment, comprising on the whole 283 hours of compression, the pulsation gradually disappeared, and the patient was completely cured. Two points which were observed during the process strike the reporter as of considerable interest. One was that on December 15 it was remarked that the tumour had a feeble pulsation, even when the carotid was completely compressed, and it was discovered that this was due to pulsation in the superior thyroid artery, from anastomotic circulation. Another was, that after the definitive cure of the tumour (on December 30) pulsation could be perceived above the tumour, in the upper part of the external carotid, which was evidently due to anastomotic circulation, since it was not checked by compression on the common carotid of that side. The account refers to a collection made by the present reporter of seven cases of compression of the carotid for aneurism in the neck. In two cases it failed, and the carotid was tied, with a fatal result in each case; in the other five it succeeded, four being cases of digital, and one of instrumental compression. This is therefore the fifth successful case of digital compression of the common carotid for aneurism in the neck.

AUDÉ ON A CASE OF TRAUMATIC FEMORAL ANEURISM CURED BY THE LIGATURE OF THE ARTERY ON ANEL'S METHOD.—Dr. A. Audé relates, in the *Bulletin de Thérapie*, February 15, 1875, a case which occurred in 1872, in a man aged twenty-nine, who accidentally stabbed himself in the thigh. The hæmorrhage was very violent, but was restrained by pressure. He was admitted next day into hospital,

* Is it allowable to express a hope that some more intelligible language may get into use in describing aneurisms? The present writer has read and written much on aneurism, yet he must profess his entire uncertainty what is meant here by the terms 'false' and 'consecutive.' It might be that the consultants thought that the tumour had been ruptured during the voyage in the efforts of vomiting, and therefore called it 'consecutive,' and also that it had originally been formed only of the external coat of the artery, and therefore denominated it 'false;' but there is no indication of this in the Portuguese narrative. The narrators (the surgeons of the *Maison de Santé*) speak of the 'constantly gradual progress of the aneurism' during the voyage, and of its having enlarged both in outward direction and towards the pharynx. —*Rep.*

very pale from loss of blood, and suffering much from pain in the thigh. On the bandages being removed next day, *i.e.* the second after the accident, a vertical wound was found about an inch in length at the junction of the lower and middle third of the thigh, over the course of the artery. The whole thigh was enormously swollen, and pulsation could be felt over the whole of the anterior part of the limb, from its centre to about an inch above the internal angle. There was also very loud rasping arterial bruit. Pressure on the femoral in the groin suppressed the pulsation and bruit at once. The pulsation in the arteries below was perceptible, though very feeble. During the examination the tumour became more prominent, and it was necessary to do something at once. The surgeon thinking that it was out of the question to attempt to tie the artery above and below the wounded part (though he does not explain his reason for thinking so), and considering that the Hunterian ligature was too uncertain, and in the patient's condition too dangerous, determined to continue the pressure, in the hope that (as he expresses it) 'the diffused primitive aneurism might transform itself into a false consecutive aneurism,' *i.e.*, in simpler language, that a complete sac might form. Accordingly, a tourniquet was loosely applied over the femoral above, and compresses and bandage to the wound. The sac formed accordingly, the tumour becoming more defined, though it was still of very large size, and about five weeks after the accident, as the aneurism had begun to increase, and the wound began to open out and threaten hæmorrhage, it became necessary to operate. The superficial femoral artery was therefore tied just above the tumour, and about an inch below the origin of the profunda. Dr. Audé remarks that the pulsation of the popliteal had long ceased to be perceptible, yet the limb continued to be perfectly nourished, which led him to believe that the collateral circulation had already been re-established. The case did perfectly well, except that the aneurismal sac suppurated, and it was necessary to lay it freely open; and in a few months the man returned to his employment, that of pointsman on a railway.

[We have thought this worth quoting as an example of the success of Anel's operation,—an operation rarely performed now-a-days on the femoral artery. The motive of the surgeon for postponing the ligature of the vessel above and below the wound, which would otherwise seem certainly the most obvious treatment, appears to have been the exhaustion of the patient at the time of the accident. It will be noticed, however, that this delay did not save the patient from the necessity of ultimately laying the sac open.—*Rep.*]

T. HOLMES.

ROUX (DE BRIGNOLES) AND PAULET ON URINARY FEVER.—At the Society of Surgery in Paris, on December 9, 1874 (*Gazette des Hôpitaux*, January 12, 1875), M. Paulet criticised a paper by M. Roux on the origin of urinary fever. The author's views on the causes and nature of this disease have some interest. To predisposing causes he assigns little weight, and classifies nephritis, which some hold to be the real cause of the symptoms in all cases, with diarrhœa, rheumatism, etc. As determining causes, he maintains two factors to be essential—an alkaline or partially decomposed urine, and a laceration of the mucous membrane of the urethra, over which the alkaline urine must pass. He describes the production of the

fever as follows. Let a patient have a strictured urethra; if behind the impediment there be no ulceration or breach of surface secreting a mucopurulent discharge, the instruments necessary for evacuating the bladder or dilating the contraction may be passed without causing urethral fever or other inconveniences. But should the catheter, in threading its way through the contractions, tear a fold or chafe the projecting or ulcerating points in the distended urethra behind the stricture only sufficiently to cause a very slight bleeding, the door is opened to absorption of septic matter from the disorganised urine, and urinary fever takes place. M. Paulet questions the accuracy of this explanation. He allows that alkaline foetid urine is a necessary condition, believing that true urinary fever does not occur when the urine is normal; but he maintains that the evidence brought forward by the author, to show that the septic absorption can take place only through the lacerated urethra behind the stricture, is insufficient. Paulet holds that urinary fever, though far most frequent among strictured patients, does also occur in cases of chronic cystitis where the urethra is healthy and empties itself during micturition to the last drop. He points out that the observations of Küss and Jusini prove that the vesical epithelium, in its healthy state, has very little, if any, absorbing power; but that alkaline urine softens and disengages the epithelial cells from each other, so that, even if the mucous membrane be not quite bare, the mere touch of the sound causes an erosion and opens the door for the entry of urinary poison. If this be correct, and the septic agents of decomposed urine can be absorbed from other parts of the urinary tract and not solely from the urethra, Paulet desires that the name urinary fever should be retained, instead of urethral fever as proposed by the author.

With regard to the nature of the toxic agents, to whose introduction into the circulation urinary or urethral fever is due, Roux believes them to be ferments, because the alkaline urine is usually highly charged with multiplying germs of the torulaceous class. In short, urinary fever is a zymotic affection due to fermentative poison, and not simply to absorption of carbonate of ammonia into the blood.

Uræmia from parenchymatous nephritis or pyelonephritis, often present in long-standing affections of the bladder or urethra, is held by M. Roux to be so distinct by its symptoms from urinary fever that it cannot be confounded with the latter. Paulet does not admit this. He points out that, although a well-marked case of uræmic convulsions has little in common with urinary fever, yet many of the manifold forms of uræmic poisoning merge in a manner not to be distinguished from cases of urinary fever. If the occasional similarity of uræmic poisoning and urinary fever be granted, he is ready to allow that usually these two affections are unlike each other. Paulet, regretting that the author has devoted but little of his treatise to the part played by kidney-affections in producing septic urinary poisoning, declines to agree with Malherbe and others who ascribe both urinary fever and uræmia to them alone, to the complete exoneration of the bladder and urethra. Malherbe formulates his theory as follows. In uræmic or urinary fever the symptoms may be divided into the reactionary, or those due to inflammation of the kidney, and those due to intoxication from retention of the materials of the urine in the blood. The more violent attacks, resembling ague, are caused by

intense renal congestion; the remittent form accompanies interstitial nephritis. In other words, to borrow those of Girard, the conditions described under the name of urethro-vesical fever, or urinary intoxication, may be attributed to two causes; (1) The accumulation in the blood of the constituents of urine through the excretive function of the kidneys being impeded or abolished by injuries of the acini; symptoms that are identical with uræmia in Bright's disease; (2) Absorption of decomposed urine; symptoms analogous to those of putrid intoxication. Paulet prefers to occupy a position between Roux and Malherbe, believing that, though not constantly, the kidney is often combined with the bladder as the seat of inflammation in urinary fever.

In his directions for treating urinary fever, Roux urges early cure of vesical catarrh if it be present; the administration of bromide of potassium to diminish the sensitiveness of the urethra; and he sets high value on quinine, and especially on alcohol, as a means of reducing fever. He also, from a small number of experiments, believes that thirty grains (two grammes) of ergot given before the catheter is passed tends to prevent fever. During the progress of the fever, Roux gives most confidence to quinine and alcohol in considerable doses.

BERKELEY HILL.

RECENT PAPERS.

- Surgical Treatment of Internal Aneurisms; especially of the Brachio-Cephalic Trunk and of the Thoracic Aorta. By Dr. S. Amado. (*O Correio Medico de Lisboa*, January 18, 1875.)
- Gun-Shot Wound of the Head, with almost complete Destruction of the Left Frontal Lobe of the Brain: Death on the Ninth Day. By Dr. F. Illing. (*Allgemeine Wiener Medizin. Zeitung*, no 7, 1875.)
- Ligature of the Internal Iliac Artery for Wound of a Branch of the Gluteal. By Dr. P. Landi. (*Lo Sperimentale*, January and February.)
- New Apparatus for Transfusion of Blood. By Dr. G. Tenderini. (*Lo Sperimentale*, February, 1875.)
- Foreign Body in the Larynx: Extraction by the Natural Passages. By Dr. F. Massei. (*Lo Sperimentale*, February, 1875.)
- On the Treatment of Double Hare-Lip. By Dr. Duploux. (*Bulletin Général de Thérapeutique*, February 28.)
- Two Cases of Ankylosis of the Knee-Joint treated by Osteotomy. By Professor Volkmann; with introductory note by Mr. Lister. (*Edinburgh Medical Journal*, March, 1875.)
- On Fractures of the Body of the Clavicle by Muscular Contraction. By Dr. Delens. (*Archives Générales de Médecine*, March, 1875.)
- Penetrating Wounds of Thorax and Abdomen treated Antiseptically. By Dr. Mac Ewen. (*Glasgow Medical Journal*, January, 1875.)

OBSTETRICS AND GYNÆCOLOGY.

CREMONESI ON A CASE OF INTERSTITIAL CYSTIC SARCOMA OF THE UTERUS, MISTAKEN FOR OVARIAN TUMOUR.—Dr. Cremonesi relates the following rare case in the *Archivio di Medicina, Chirurgia, ed Igiene*, November and December, 1874 (*Gazzetta delle Cliniche*, February 2.)

A. P., aged fifty-two, mother of a large family, had ceased to menstruate for three years, and during that time had been subject to nervous disturbances such as accompany pregnancy. The abdomen increased in size; two or three months after the last catamenia, she had an attack of metrorrhagia; and after that, the loss of blood from the uterus recurred at irregular intervals, became in course of time more

frequent and abundant, and reduced the patient to a deplorable condition.

When admitted into hospital, under Professor Laurenti, on August 7, 1874, she had a large abdominal tumour, extending from the pubes to above the umbilicus. It projected most at the umbilical and right epicolic regions, was elastic, and slightly painful on pressure; on palpation, it was found to contain fluid; on percussion a sharp sound was heard; and auscultation revealed a soufflé isochronous with the pulse. A sound introduced into the uterus did not pass beyond 0·8 to 1·2 inches. Dr. Laurenti believed that the case was probably one of ovarian cyst. A puncture gave exit to about a pint and a half of liquid. The abdomen became smaller, but the tumour did not disappear. It was then believed that the cyst was multilocular, and ovariectomy was decided on. The next day, however, the abdomen had become as large as before; vomiting and diarrhoea set in, the metrorrhagia became more profuse, and the patient died on August 17.

At the necropsy, the ovaries were found to be healthy; the tumour was uterine. The cervical portion of the uterus was dilated and elongated; the cavity of the organ was much distended, and the thickness of the walls gradually diminished from below upwards, being at last only four or five millimètres (0·16 to 0·2 inches). It appeared as if the uterine cavity was completely divided into two unequal parts by a horizontal septum, formed by the detachment of some of the more internal muscular strata of the uterus. The upper portion was the larger, and formed about three-fourths of the whole. The lower portion, which represented the true uterine cavity, was covered with mucous membrane and communicated with the cervical canal. In the upper cavity was a new growth, arising from various points of the wall, and of different forms and sizes in its various parts. To the right of the cavity was a cylindroid mass, free, and about $5\frac{1}{2}$ inches long, and another mass was united to the wall on the left side by a very slender bridle. The portion of the cavity not occupied by the tumour contained a yellow albuminous liquid, like that which had been removed by puncture.

Microscopic examination showed that the tumour was a sarcoma developed in the uterine walls.

A. HENRY, M.D.

GOLDSCHMIDT ON CARCINOMA OF THE FUNDUS UTERI.—Herr Goldschmidt reported four cases of carcinoma of the fundus uteri at the Obstetrical Society of Berlin, meeting on March 24, 1874 (*Berliner Klinische Wochenschrift*, no. 52, 1874). The diagnosis of this complaint is rendered difficult from its being accompanied through its various stages with symptoms which belong also to other uterine ailments, and added to that the rarity of carcinoma of the fundus may easily lead it to be mistaken for the other affections. It is complicated with discharges, swellings, alterations of position and inflammations in the neighbourhood. A microscopical examination of the discharges might frequently aid the diagnosis.

The first case was that of a sterile woman, aged forty-two, who had suffered in the lower part of the abdomen for six years. She was first seen by Herr Goldschmidt for symptoms of obstinate constipation, with signs of ileus. An examination discovered that the rectum was completely compressed by the uterus,

was changed into a strong hard tumour of the size of a fist. Injections *per rectum* had no effect; and it was only after division of the sphincter and the introduction of the whole hand, and pushing the uterus forwards and replacing a fold of mucous membrane that had become displaced above it, that complete emptying of the bowels took place. After that, the operation had to be frequently repeated. At the end of a year, when the case was related, canceroid degeneration had appeared in the vaginal portion of the uterus in the vagina; the fundal tumour was probably the starting-point of the disease.

In a second case there was also enlargement and compression of the rectum; cancer-cells were found in the discharges. A third case was seen just before death. The rectum was compressed in the same way; and the necropsy showed carcinoma of the fundus, of the abdominal parietes, and of the ovaries. In a fourth instance, beyond a foetid discharge and some erosion, nothing was to be found in the uterus; nevertheless, the microscope showed cancer-cells in the discharge. Herr Wegscheider considered the diagnosis of cancer of the fundus extremely difficult, and that it had not been established in the three cases where the necropsy had not been made. He personally had only met with one case of cancer of the fundus, which was first discovered in the *post mortem* examination. In this case there was a probability of its having passed from the bowel to the uterus.

Herr Wernich found, in the cases described, a similarity with those of sarcoma recorded by Gussierow, Hegar, Spiegelberg, and Chrobak; and was disposed to assume that Dr. Goldschmidt's were also cases of sarcoma. He himself had up to this time only met with one case.

Dr. Goldschmidt laid great stress on the microscopic results as a diagnosis.

STOLTZ ON FIBROIDS OF THE UTERUS: INTRA-UTERINE MYOMATA.—M. Stoltz, writing in the *Revue Médicale de l'Est*, February 1, 1875, says that pediculated fibrous bodies, commonly known by the name of polypi, arise either from the cavity of the body or from the neck. The former are not properly pediculated, but adhere to a more or less limited surface of the uterus; they are really sessile. They become pediculated by the excessive uterine efforts at their expulsion. When in the vagina, they are not really pediculated. Should the part to which they are attached offer considerable resistance, the capsule may become elongated into a veritable pedicle. As a rule, the fibrous body draws down with it the portion of the uterine wall to which it is attached, causing an inversion of the uterine parietes, allowing thereby the polypus to project into the vagina. This fact should never be absent from the mind of the operator, whether the polypus be still within the uterine cavity or protruded into the vagina, or replaced into the uterus, or drawn down by the manipulator into the vagina. The first object is to make out whether the tumour is pediculated or sessile; if the latter, the extent of the base. Should it prove to have a wide base, he strongly recommends making a couple of incisions into the capsule with a pair of curved scissors; the tumour then peels out of its capsule as the rind does from off an orange. He has done this operation many times with success; as a rule, it is the most expeditious and least dangerous method of dealing with these growths; but he admits exceptions. The wire *écraseur* he objects to, on account of the danger of cutting the uterus, which

has been the case more than once in the hands of the most skilled operators. Professor Braun-Fernwald, for the same reason, advises the tumour to be cut in halves, or a piece cut out of it with the galvanic wire cautery. Other authors strongly recommend that the patient should not be anaesthetised before tightening the wire of the écraseur, as, from the uterine tissue being a sensitive structure, her sensations will be a fair guide as to whether the uterus has been impinged upon or not.

W. C. GRIGG, M.D.

BLACKWOOD ON QUININE AS AN OXYTOCIC.—Dr. Blackwood of Philadelphia states (*Philadelphia Medical and Surgical Reporter*, Jan. 1875) in reference to this vexed question, that, during a residence in a part of the States where intermittent fever abounded, he met with clear and unmistakable proofs of the power of quinine to excite the uterus to action. In several instances, when he gave it to pregnant women who were suffering from ague, abortion was quickly induced, though the patients were in fair health, and had previously had no tendency to miscarriage. He is of opinion that intermittent fever itself does not predispose to abortion, and he was so satisfied that the quinine was to blame, that in similar cases he afterwards substituted arsenic for it, and had no more such accidents. Dr. Blackwood has also tried quinine experimentally in cases of labour, and he states that its effect is uncertain, but that, in some cases, its action is as decided and prompt as ever he has obtained from ergot; in one case, where ergot acted inefficiently, quinine gave much more satisfactory results.

J. W. LANGMORE, M.D.

PAJOT ON CHLOROFORM IN NATURAL DELIVERIES.—Professor Pajot, while discussing Dr. C. J. Campbell's work, of which an analysis was given in the *Bulletin de Thérapeutique*, vol. lxxvi. p. 234, comes to the following conclusions. The place of chloroform in obstetrics is now definitively settled. No practitioner would hesitate to use it with all indispensable precautions in cases of painful operations or abnormal though spontaneous deliveries, unless there be indications to the contrary. True anaesthesia, however, when used in natural deliveries during the periods of uterine and vulvular dilatation, is a serious and scientific process which admits of discussion; its dangers and inconveniences appearing to exceed its advantages in the opinions of some persons, though there are arguments for the opposite view and it is capable of defence. As to the so termed semi-anaesthesia, it is a practice as useless as it is harmless, and has no scientific or serious value whatsoever. Such are the opinions of M. Pajot, who, in the *Annales de Gynécologie* for January 15, 1875, likewise attacks some passages in Dr. C. J. Campbell's memoir.

RECENT PAPERS.

- Babies' Sore Eyes. By Dr. Williams. (*Boston Medical and Surgical Journal*, January 28.)
 Treatment of Vaginal Discharges. By M. Guibout. (*Gazette des Hôpitaux*, February 9.)
 On Infubulation in its Relations to Parturition. By Dr. P. Sonsino. (*Gazzetta Medica Italiana-Lombardia*, no. 5, 1875.)
 On Anaesthesia applied to the Aid of Delivery. By Dr. Hippolyte Blot. (*Archives de Tocologie*, March, 1875.)
 On Simplification of the Operation for Removal of Certain Polypi of the Uterus. By Dr. Gueniot. (*Ibid.*)

PSYCHOLOGY.

BLANCHE, BERGERON, AND LASÈGUE ON IMPULSIVE INSANITY.—In the *Archives Générales de Médecine*, January, 1875, there is a report by Drs. Blanche, Bergeron, and Lasègue of a homicide committed by a young man, Henri Thouviot, the victim being a girl aged twenty, an assistant at a restaurant, whom he had never seen previously to the moment when he stabbed her. Questioned why he did it, he replied that it was to satisfy an idea which he had had for a long time, and said further that he had passed the preceding night with a girl whom he had intended to kill, but had desisted, chiefly because he feared that he would be suspected of murdering her for the sake of robbery. The reporters review the various kinds of homicidal insanity, which they describe under four heads. 1. Homicide through delusion, e.g., that a system of persecution is being carried on. Thouviot had had an idea that his mother was responsible for his misfortunes and want of character, and had conceived some idea of murdering her, but this form was not that under which he stabbed the girl at the restaurant. 2. A weak-minded or imbecile individual may commit a murder after some slight quarrel or fancied provocation. Thouviot cannot be brought under this category. 3. An intermittent or transitory mania is sometimes found, depending on alcoholic poisoning, on epilepsy, or on a masked epilepsy. Thouviot exhibited no affection of the muscles or of speech; and although the pupils were unequal, and the sight of the left eye impaired, it was thought that there was no brain-lesion. He had had some attacks of vertigo, but there seemed no reason for thinking him an epileptic. 4. There is, however, another class of insane homicides impelled to commit murder by an irresistible though transitory power, without other physical or psychological lesion at the time, without subsequent defect of intellect. Such attacks may be more or less intense and more or less frequent. They may not recur for years; they may be instantaneous, passing quickly away, or may continue for days or weeks. There is no loss of consciousness or of recollection, as in epilepsy. Thouviot, according to the reporters, belonged to this category. His demeanour was different from that of ordinary criminals; he discussed the crime as if it was another's. He was vain of the name of 'assassin,' puerile in his ideas and wishes, without any power of reflection. He was transferred to Bicêtre.

AUZOUY ON MASKED EPILEPSY.—In his account of a criminal case, in which masked epilepsy was alleged in defence, Dr. Auzouy (*Annales Médico-Psychologiques*, Nov. 1874), remarks that the doctrine of this disease involves some of the most delicate and difficult questions of legal medicine. It is, according to some, a neurosis which is not to be recognised by any external symptoms, or by any forewarning, but which is manifested by sudden and violent acts, repeated at varying intervals, and yet demanding entire irresponsibility. But, he says, although it is not declared by the ordinary epileptic attack, or by unmistakable external symptoms, it has, nevertheless, characteristic marks by which it may be known. Trousseau tells us that the epileptic act in such patients is even more sudden than the convulsive seizure, and is evidenced by some extraordinary or outrageous conduct, which one sees

cannot be voluntary. M. Falret says that, in these epileptics, slight convulsive movements may be noticed by a medical man, which might escape ordinary observation. And further, he quotes M. Morel, who lays down the following as characteristics of the disease: Periodical exaltation, followed by prostration and stupor; exaltation of sensibility; acts having the character of instantaneous and irresistible impulse; tendency to suicide and homicide; delusions and cerebral excitement; exaggerated ideas of strength, riches, and intellect; mixture of erotic and religious sentiments; frightful hallucinations, dreams, and nightmares; gradual weakening of intellect, loss of memory of what was done in the paroxysm; delusions recurring in the same way on each occasion. Dr. Auzouy tests the alleged epileptic by these characteristics, and decides that they were not to be found in him. The man was accused of indecent conduct with boys, and this extended over a period of fifteen years; and so long a time proves, he says, conclusively, that it was not masked epilepsy. Another man was accused of acts of immorality with little girls, and he tests him in the same way, and decides against the theory of his being an epileptic. He quotes M. Billod, who says that the only sure test of an epileptic attack is the want of recollection of what was done during it, and that, in the absence of this, a prudent reserve must be maintained. That masked epilepsy does render patients irresponsible must, he says, be admitted by all; and therefore it is the more necessary that the characters and principal symptoms should be laid down in a lucid and unmistakable manner.

G. FIELDING BLANDFORD, M.D.

RECENT PAPERS.

The Insanity of Inebriety. By Dr. George Barr. (*The New York Psychological and Medico-Legal Journal*, December, 1874.)

The Study of the Human Mind from a Physiological Point of View. By Dr. Samuel Wilks. (*Journal of Mental Science*, January, 1875.)

The Hallucinations of Mahomet and Others. By Dr. W. W. Ireland. (*Journal of Medical Science*, January, 1874.)

Idiocy and Consanguinity. By Dr. Maurice Beiret. (*Annales Médico-Psychologiques*, November, 1874.)

Remarks on the Origin, Varieties, and Termination of Idiocy. By Dr. Grabham. (*British Medical Journal*, January 16.)

ELECTRO-THERAPEUTICS.

WAGENHALS ON INSULATION OF BEDS.—Dr. Wagenhals, of Columbus, Ohio (*The Philadelphia Medical and Surgical Reporter*, January, 1875) reports a number of cases of rheumatism, in which simple insulation of the beds, by placing the legs of the bedstead in four glass tumblers, appeared to be of remarkable efficacy in easing pain, procuring sleep, and promoting recovery. He has no theory to offer as to the *modus operandi* of this treatment, but simply records the facts. In some parts of South America, along the banks of the Amazon river, families place the legs of their beds habitually into tumblers filled with water, not, as might be expected, to protect them from insects and vermin, but for the relief of rheumatism and kindred disorders, and to prevent attacks of malarial fevers. [A French army surgeon, who found years ago the same habit,

existing in Algeria, has written an elaborate memoir to prove that the benefit of the procedure is owing to the prevention of the escape of the vital electricity from the system.—*Rep.*] JULIUS ALTHAUS, M.D.

MISCELLANY.

MR. J. R. BLAKE, M.A., F.G.S., has been elected to the lectureship on Zoology and Comparative Anatomy at Charing Cross Hospital Medical School.

MR. E. RAY LANKESTER, M.A., Fellow of Exeter College, Oxford, has been elected to the Professorship of Zoology and Comparative Anatomy in University College, London, rendered vacant by the death of Dr. Grant.

ARTIFICIAL EYES FOR HORSES.—In the *Magazin für die gesammte Thierheilkunde* (1873, second part), Herr Hertwig, professor at the Berlin Veterinary School, describes an improvement in the artificial eyes which are sometimes employed, particularly on the Continent, to palliate the unsightliness resulting from the extirpation or atrophy of the horse's eye from accidental causes. Horn is the material out of which he has fabricated the artificial eye, which is merely a smooth capsule or shell of this substance. The effect of an artificial eye of this description, especially when seen at a distance, is astonishing; indeed, the illusion is complete, for it looks exactly like a real eye, and the natural appearance of the horse's face is quite restored. The eye is easily maintained in the orbit, and rarely causes an increased mucous secretion or any other untoward effect. The horse does not object to it; indeed, it is a comfort to the animal, as it prevents the entrance of flies, dust, and other injurious bodies to the cavity. Hertwig gives drawings of the artificial eyes. The price is about one shilling.

MARRIAGE AND LONGEVITY.—In our impression of February 10, we gave a summary of Mr. Herbert Spencer's remarks on the fallacy of the ordinary statement that matrimony conduces to length of days. Researches made by M. Bertillon tend to controvert this view; at any rate, so far as concerns France, Belgium, and Holland. A careful study of statistical documents relating to these countries, and especially to the city of Paris, show that marriage creates a remarkable increase of longevity in both sexes. M. Bertillon has likewise extended his investigations to the class of widowers, amongst whom he finds the same, or even a higher ratio of mortality, than amongst celibates of the same age. He thence concludes that the greater vitality of married persons is not derived from extrinsic causes, but is a directly beneficial result of marriage, which modifies the conditions of life advantageously. To this fact, however, there is, according to M. Bertillon, a striking exception; it is that marriages contracted before the parties are twenty years old, instead of diminishing the risks of death, increase it; for women in the proportion of seven to eleven, and for men in the proportion of seven to fifty; that is to say, from one to seven.

INCREASE IN THE DURATION OF LIFE.—In ancient Rome, during the period between the years 200 and 300 A.D., the average duration of life among the upper classes was thirty years. In the present century, among the same classes of people it amounts to fifty years. In the sixteenth century the mean duration of life in Geneva was 21.21 years, between 1814 and 1833 it was 40.68 years, and at the present time as many people live to seventy years of age as three hundred years ago lived to the age of forty-three. In the year 1693 the British government borrowed money, the amounts borrowed to be paid in annuities, on the basis of the mean duration of life at that time. The State Treasury made thereby a good bargain, and all parties to the transaction were satisfied. Ninety-seven years later, Pitt established another tontine or annuity company, based on the presumption that the mortality

would remain the same as 100 years before. But in this instance it transpired that the government had made a bad bargain, since, while in the first tontine 10,000 persons of each sex died under the age of twenty-eight, 100 years later only 5,772 males and 6,416 females died under this age. From these facts it appears, that life under certain favourable influences has gained in many and probably in all its forms and manifestations, both in vigour and duration. To still further promote this tendency, it is only necessary that those conditions under which the attainment of the desired end is possible be made to accord with the fundamental natural laws. — *Deutsche Versicherungs-Zeitung*.

SCHOLARSHIPS AND EXAMINATIONS FOR NATURAL SCIENCE AT CAMBRIDGE, 1875.—The following is a list of the scholarships and exhibitions for proficiency in Natural Science to be offered at the several colleges and for non-collegiate students in Cambridge during the present year. *Trinity College*. One or more scholarships of 100*l.*, and one exhibition of 50*l.* The examination for these will commence on March 30. Further information may be obtained from the Rev. E. Blore, tutor of Trinity College. — *St. John's College*. One of the value of 50*l.* per annum. The examination (in Chemistry, Physics, and Physiology, with Geology, Comparative Anatomy, and Botany) will commence on April 3, and will be open to all persons who have not completed a term of residence at the University, as well as to all who have entered and have not completed one term of residence. There is a separate examination in Natural Science at the time of the annual college examination at the end of the academical year, in May, and exhibitions and foundation scholarships will be awarded to students who show an amount of knowledge equivalent to that which in Classics or Mathematics usually gains an exhibition or scholarship in the College. In short, Natural Science is on the same footing with Classics and Mathematics, both as regards teaching and rewards. *Christ's College*.—One or more in value from 30*l.* to 70*l.*, according to the number and merits of the candidates, tenable for three-and-a-half years, and for three years longer by those who reside during that period at the College. The examination will be on April 6. There are other exhibitions which are distributed annually among the most deserving students of the College. Further information may be obtained of John Peile, Esq., Tutor of the College. *Corville and Caius College*.—One of the value of 60*l.* per annum. The examination will be on March 18, in Chemistry and Physics, Zoology with Comparative Anatomy and Physiology, and Botany with Vegetable Anatomy and Physiology. Further information may be obtained from the Tutors. Scholarships of the value of 20*l.* each or more are offered annually for Anatomy and Physiology to members of the college. Gentlemen elected to the Tancred Medical Studentships are required to enter at this college; these studentships are five in number, and the annual value of each is 100*l.* Information respecting these may be obtained from B. J. L. Frere, Esq., 28 Lincoln's Inn Fields, London. — *Clare College*. One of the value of 60*l.* per annum, tenable for two years at least. The examination (in Chemistry, Chemical Physics, Zoology with Comparative Anatomy and Physiology, Botany with Vegetable Anatomy and Physiology, and Geology) will be on March 16, and will be open to students attending to begin residence in October. — *Downing College*. One or more of the value of 60*l.* per annum. The examination (in Chemistry, Comparative Anatomy, and Physiology) will be on April 6, and will be open to all students not members of the University, as well as to all undergraduates in their first term. — *Sidney College*. One of the value of 60*l.*, and one of the value of 40*l.* per annum. The examination (in Heat, Electricity, Chemistry, Geology, Zoology, and Physiology, and Botany) will be on April 6, and will be open to all students who intend to commence residence in October. — *Emmanuel College*. One of the value of 70*l.* The examination on March 24 will be open to students who have not commenced residence. —

St. Peter's College. One scholarship of the value of from 40*l.* to 80*l.* according to the attainments of the candidate. The examination of April 6 will be in Botany, Chemistry and Chemical Physics, Geology, and Comparative Anatomy and Physiology; but no candidate will be allowed to be examined in more than two of these subjects. Application must be made before March 20 to the tutor. — *Non-Collegiate Students*. An exhibition each year is given by the Clothworkers' Company, value 50*l.* per annum, tenable for three years. Examination about Christmas. Information to be obtained from the Rev. R. B. Somerset, Cambridge. Although several subjects for examination are in each instance given, this is rather to afford the option of one or more to the candidates than to induce them to present a superficial knowledge of several. Candidates, especially those who are not members of the University, will, in most instances, be required to show a fair knowledge of Classics and Mathematics, such, for example, as would enable them to pass the previous examination. There is no restriction on the ground of religious denominations in the case of these or any of the scholarships or exhibitions in the Colleges or in the University. Further information may be obtained from the tutors of the respective colleges. Some of the colleges do not restrict themselves to the number of scholarships here mentioned, but will give additional scholarships if candidates of superior merit present themselves; and other colleges than those here mentioned, though they do not offer scholarships, are in the habit of rewarding deserving students of natural science. It may be added that Trinity College will give a fellowship for natural science once at least in three years; and that most of the colleges are understood to be willing to award fellowships for merit in natural science equivalent to that for which they are in the habit of giving them for classics and mathematics. The scholarships and exhibitions are open to all persons, whether members of the University or not, provided they are willing to enter and become members of the respective colleges, with the exception of the 100*l.* scholarships at Trinity College, the candidates for which must have passed the previous examination at the University.

THE LATE CANON KINGSLEY, in his interesting Lectures on Health and Education, points out the indispensability of good light and good ventilation, both being essential to health and comfort. For ventilation, lower the upper and raise the lower part of the windows (say a couple of inches), fresh air will then be allowed to enter, and the hot air will escape outwards. This will be a step towards ventilation. As to light, instead of burning gas in day time, have one of Chappuis' Daylight Reflectors fitted to your window or skylight, and at night economise one or two burners by means of shades or reflectors fitted to your brackets, &c. By paying a visit to the Factory, 69 Fleet Street, you will become acquainted with the best mode of obtaining good and cheap light. — [ADVT.]

NOTICE.

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The London Medical Record.

WEDNESDAY, MARCH 17, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

HEGER ON THE CIRCULATION OF THE BLOOD IN EXCISED ORGANS.*

Dr. Heger, professor of physiology in Brussels, in an able monograph, cites the results of his researches on the above subject, made under Ludwig's direction. The author shows clearly that the alkaloids have an action, entirely local, upon the walls of the vessels, and that this action is independent of the nerve-centres.

Artificial Circulation.—An organ, such as the liver or kidney, is removed from the body as soon as the animal is killed, and a stream of blood passed through its vessels. The study of its function is therefore very greatly simplified. The blood employed ought to be defibrinated, carefully filtered, and brought to a proper temperature, and be taken from an animal of the same species from which the organ, whose function is to be studied, was taken. In certain cases, however, the blood of other animals may be employed, as the blood of the rabbit or the frog, etc. A description is then given of the manner of making artificial circulation of defibrinated blood in the lungs of a dog. The lungs are placed in a glass case, hermetically sealed, to represent the thorax; within which the pressure on the surface of the lungs is easily regulated and graduated by a pressure-bottle. Similar instructions are given for artificial hepatic secretions, just as was practised by Asp (LONDON MEDICAL RECORD, December 16, 1874). The changes that the defibrinated blood undergoes in its passage through the different organs experimented on are then considered.

General Modifications observed in Artificial Circulation.—Generally the blood in its passage loses its red arterial colour and takes on a venous character; but if the rapidity of the circulation be considerable, it passes through without alteration of colour; the absolute quantity of oxygen absorbed and of carbonic acid produced is considerable, the relative quantity less.

As the chemical modifications are dependent on the rapidity of the current, it is important to study the causes that vary the duration of passage and establish the relation between pressure and velocity.

If organs be devoid of all the properties of living tissues, the pressure being equal, then the quantity of blood obtained at the orifice of outflow will be equal in equal times, save those slight differences which are observed upon operating on inert tubes of small diameter (Poissonuille).

But it is not so in a fresh organ in which we cause a current of defibrinated blood to circulate under, *e.g.* a constant pressure of ten millimètres of mercury.

* *Expériences sur la Circulation du Sang dans les Organes Isolés.* Par Dr. Paul Heger, Bruxelles, pp. 69, 8vo, 1873.

The quantity of blood which traverses the organ becomes less from minute to minute, with, however, some oscillations. If, at the moment of cessation of the flow, the pressure in the entering vessels be suddenly elevated by several millimètres, the afflux augments immediately at the orifice of outflow, and, after having attained a maximum, gradually declines. If at the end of the outflow, before it has ceased, the pressure within the entering vessels be suspended, then the current ceases immediately; then, upon restoring the pressure, the current is more considerable than before the interruption. It is seen, then, that (1) every oscillation of pressure causes oscillations in rapidity; (2) under the same pressure, the quantities delivered are not equal, since the rapidity diminishes constantly, and a momentary interruption suffices to determine an augmentation of the current.

Whilst under a constant pressure, the current is established without interruption. On comparing the quantities delivered during two minutes (*e.g.* from the lungs), it happens that the second is larger than the first; there are oscillations such that the rapidity rises, diminishes, rises again and diminishes, until it falls more and more towards zero. In a dead organ the rapidity does not undergo the same oscillations as in a fresh one; in a dead organ (*e.g.* lungs, twenty-four hours after death) the rapidity, at first constant, abates gradually and progressively; there are no oscillations of the current; the quantity obtained during one minute is equal or inferior, without recurrence, to that obtained during the preceding minute. Œdema, although it does contribute to lessening the rapidity of the current, is equally, with the idea of capillary embola, incapable of explaining the oscillations observed. The changes undergone by the blood after its passage through excised organs, *e.g.* muscle, lungs, etc., have already been studied by J. J. Müller, Ludwig, A. Schmidt, and Genersich. In experiments on excised lungs the author finds that, all other circumstances being equal, the rapidity of the blood-current traversing the lungs is proportional to the pressure exerted in the pulmonary artery. With the same pressure in the pulmonary artery the quantity of blood which traverses the lungs is much greater when they are dilated by the pleural cavity. With the same pressure in the pulmonary artery, the quantity of blood which flows through the lungs is much less when they are dilated by inflation through the trachea. The blood is attracted to the pulmonary vessels during inspiration.

Circulation in the Excised Liver.—The author points out that the oscillations in the current are again found in the liver, where the vena portæ in its ultimate ramifications contains no muscular fibres, but only connective tissue and elastic fibres. The following, the results of Belz's experiments under Ludwig, on the circulation of a solution of gum in the liver, are then stated; and as they are not generally known they may be introduced here. In taking into view the diameter of the hepatic artery and that of the vena portæ, the portal circulation has a greater rapidity than the arterial hepatic one. The circulation in the hepatic artery is facilitated by the absence of a current in the portal vein; it is interfered with by a simultaneous current. The retention of bile in the biliary canals is a serious obstacle to the circulation of blood in the portal vein. If two different pressures succeed each other, the current varies, not only with the pressure under which it penetrates, but also with that which precedes it. If at the beginning of a current

the pressure be constant, the quantity of fluid which passes through the liver is at first variable, and it is only after about ten minutes that equal quantities are received from minute to minute. With the same pressure in the vena portæ, the rapidity diminishes proportionally to the pressure exercised on the surface of the liver. The immense importance of these observations, both clinically and practically, is at once obvious.

Influence of Toxic Agents on the Blood-current in Artificial Circulation.—If a few drops of an alkaloid be added to defibrinated blood, the current of blood which passes through the organ is immediately modified. Thus, nicotin added to defibrinated blood, circulating through excised lungs, greatly increases (to three times) the rapidity of the current. As soon as normal blood is admitted, the action of the alkaloid is effaced, the slowing of the rapidity (as expressed by the quantity which flows out from the pulmonary vein in a given time) which succeeds the toxic action is regular as in a dead organ; it shows no oscillations, yet a new dose of the alkaloid produces again an acceleration. The modifications in the rapidity are proportional to the dose of nicotin employed; the larger the dose, the greater the rapidity. Nicotin has, therefore, a special action, entirely opposite to that of cyanide of potassium, which causes arrest of the circulation by cedema.

Exactly the same is true of the liver.

In thus experimenting on excised organs we eliminate all effects of the central nervous system, to whose influence too many phenomena in the physiology of the circulation are too apt to be ascribed. Nicotin when added to blood produces a change in its colour and constitution; but this is not the cause of the action, for large doses of nicotin added to blood passed through dead organs had no influence whatever on the rapidity of the current. By the aid of Poisseuille's formula, it is shown that there are modifications in the calibre of capillaries under the influence of certain toxic substances, but whether due to contractility proper or not, the author leaves undecided.

WM. STIRLING, D.Sc., M.B., Edin.

WARLOMONT ON THE CASE OF LOUISE LATEAU, THE MYSTIC OF BOIS D'HAINE.

(Continued from page 130.)

The commission having no doubt as to the genuineness of the ecstasies as manifested by Louise Lateau, and also of the spontaneous occurrence of the stigmatic hæmorrhages, proceed to remark in relation to the ecstasies, that there is a very widely diffused class of diseases supposed to have their seat in the nervous system, and named neuroses, some of which are classic and others of rare occurrence. A marked characteristic of one of the principal groups of these diseases is the faculty, in virtue of which the patient under its influence momentarily quits his physiological condition to enter into a secondary state, during which his acts, functions, and ideas differ essentially from what they are in the normal state; the brain, limited in its action, either no longer perceives external stimulants, or no longer interprets them in the usual way. In fact, life is duplicated. This duplication of life is not only one of the multiform manifestations of the innumerable varieties of idiopathic neuropathies, it may also be produced under other conditions, viz., after

material lesions of the brain; during the existence of well ascertained neuroses, and under the influence of certain special processes, as hypnotism, magnetism, etc.; and spontaneously, without the intervention of any external provocation, as in somnambulism, extraordinary neurosis, etc. The report enlarges successively on each of these various states. As an instance of the first, it cites the interesting account of Sergeant F., lately published by Dr. Mesnet (*On Automatism, Memory and Recollection in Pathological Somnambulism*, in the *Union Médicale*, 1874, nos. 87 and 88) and another case by the same writer (*Studies on Somnambulism*, considered from the Pathological Point of View, in the *Archives Générales de Médecine*, 1860). It concerns a woman who, in the course of an hysterical affection, was attacked in the night with mimetic ecstasy and somnambulism, during which she gave herself up to the most singular actions. The third of these states relates to the duplication of life as it is observed in hypnotism and magnetism, those varieties of artificial nervous sleep which have been so often and so long misinterpreted, that medical men have thought it better not to trouble themselves any more about their legitimate interpretation. This is a mistake. There is something in hypnotism and animal magnetism, and the profession should have the courage to search for this entity. It is necessary to recognise that, by whatever name it is called, there is a power capable of developing itself either spontaneously or by extremely simple means, and which it belongs to our epoch to define, by means of which a human being may be momentarily brought into the state of secondary condition. It is sufficient with a certain number of patients, to make them look for a certain time, from ten minutes to half-an-hour, at a shining object, situated at some distance from the eyes, before and slightly above, so as to keep them in a convergent condition (hypnotism). A mental condition is then produced, of which MM. Demarquay and Giraud-Teulon have placed the seat—hypnotising aura—in the cerebral regions where the optic nerves and the common oculo-motor end; that is, in the small space of the encephalic mass comprehended between the cerebral peduncles and the quadrigeminal tubercles. The magnetic passes really act in the same way; the eyes of the magnetiser or the fingers passed before the eyes, performing the office of the shining object; the same effect, fatiguing or congestive, is produced.

The author reports a remarkable fact of secondary condition produced by magnetic passes in a blind patient. A lady, during two years and a half, found herself in the curious position of not being able either to eat or drink except when her physician had magnetised her. He was obliged to visit her twice a day to make her take her meals, and, if circumstances caused him to absent himself for one or many days, his patient accompanied him. Directly she was asleep she ate and drank, and when she was awake was utterly unconscious of what had passed. This state, said the reporter, lasted for two years and a half, and if she had not been told of these remarkable occurrences, she would have sworn by all that she held sacred that she had neither eaten nor drank during that long period. In connection with these facts, there are others in which the duplication of life is spontaneously produced, of which the report cites numerous examples. The reporter brings into prominence the striking analogy which connects these diverse manifestations with those of the

pathological group termed neuroses. He remarks that both are undoubtedly the result of perturbations of the cerebro-spinal nervous system, localised, in all probability, for the different varieties of nervous sleep, in the cerebral region, situated between the cerebral peduncles and the quadrigeminal tubercles. This point settled, *quid* the ecstasies? By comparing them with the facts cited, it is seen that there is not one of these symptoms which is not represented in one or the other class of neuroses, and their right to be placed in the class of neuroses cannot be the subject of a doubt. On the other hand, their similarity with nervous sleep, from this point of view of duplication of life, allows their seat to be fixed in the same part of the cephalo-rachidian bulb.

The stigmata now call for consideration; and all writers have explained them by the influence of the mind on the body. The report is based on this action, which it demonstrated by a large number of facts, amongst which the following demands attention.

A distinguished physician of Antwerp writes to the commission: 'I can produce in every part of my body and at every moment of the day, by my will, a more or less intense pain. As to the facility of production, according to the different points of the body or articulations, the pain irradiates the whole of the lower part of the limb. In the vertebral column, that which is evoked in the nape of the neck spreads throughout the head; that of the back brings on a constriction of the chest; that of the loins, pain in the abdomen. But the phenomena are most strongly marked in the palms of the hands; in all other parts the pain disappears as soon as the desire to produce it is at an end; but there the pain persists for a long period, and even becomes very acute, and I can only make it cease by the aid of some powerful distraction; the cause of this, no doubt, is, that I have the most frequently solicited it at that part.'

The question may be fairly asked, if this pain really have its seat in the locality mentioned, or, if it be not the brain by which it is really produced. The answer written by the same person is, that another phenomenon showed itself on December 31 last, during the time that he made the pain persist in a given locality; the pulsation of the arteries was sensibly augmented. Thus the effect produced on the circulation of one part of the body, when the attention is abruptly directed towards it, is sometimes locally appreciable, and innervation as well as circulation undergo a special over-excitement, whence an increase of the functional activity of that region is induced. To think only of one's self, to concentrate all the powers of one's mind on some one portion of the body, is to provoke an excitement of that portion of the sensorium, or of the nervous system, which regulates that part. The general result is disturbance in the action of that part, consisting in a relaxation of vaso-motor stimulus, with local congestion of the vessels. The question arises, whether the stigmata seen on Louise Lateau answer to this description. It must be borne in mind that she always had the desire to suffer; and that this desire increased from the day when 'she received that internal light which made her understand that something extraordinary was passing within her; that from that time forward she began to feel in her body the painful sensations of those stigmata which she was soon about to receive.' Here, then, were the pains, the precursors of the stigmatisation. *Ubi stimulus, ibi affluxus.* The congestion soon

follows, and the cause which set this congestion in motion is quite perceptible. Do we not every day see persons feeling any kind of pain constantly putting their hand to the region where it is situated, notwithstanding the warnings and advice of the doctor? Louise was not able to avoid this temptation. In all probability she, without any bad intention, put her hand frequently on the painful spots, irritated and rubbed them, and in that way induced a more considerable afflux of blood. Thus a perfect chain of circumstances explaining the formation of the stigmata is formed:—The mental act evolving pain by a determinate cerebral action; congestion created by that pain, urged on by external excitations; consecutive loss of elasticity in the capillaries of the congested parts; stasis of the blood in the capillaries; dilatation of those vessels; angioma. This view of the case is not merely hypothetical, for it has been fully confirmed by microscopical examination made of a morsel taken from the depth of the dorsal stigmata of one of Louise's hands whilst she was in a state of ecstasy. This small fragment, examined by M.M. Crocq and Warlomont, showed intertwined bundles of connective tissue, dilated vessels of which the smallest measured five hundredths of a millimètre, and a papilla with a vascular loop of twenty-eight thousandths of a millimètre. Now, according to Kölliker, the capillaries of the papillæ measure at the maximum eight thousandths of a millimètre, and those of the superficial layer from ten to twenty thousandths. In Louise Lateau, these vessels, especially the former, had, therefore, undergone a considerable enlargement. M. Warlomont points out that Dr. Richardson, in a paper on purpura, published in the *Lancet* for November 28, 1874, gives the physiological explanation of the stigmata in relation to a patient suffering from that disease who had been under his care, and shows that the conditions favouring the production of the phenomena are, aglobulia of the blood with predominance of the serous element, and a limited change in the capillaries of the affected region; two fundamental conditions which were met with in Louise Lateau. He says, 'At certain points a slight subcutaneous swelling is set up, to which the name of aneurism of an arteriole or of the capillaries may be given.' M. Duwez, who assisted M. Warlomont in his investigation, had arrived at the same conclusion before these articles appeared, and had applied the name of angioma to the stigmatic processes in the case of Louise Lateau. The angiomata became converted into bleeding stigmata in this way. When the paroxysms characterised by this molimen hæmorrhagicum and the consequent local congestive breakings-out come on, the leucocytes will pass through the capillaries, become effused under the epidermis, and a blister ensues. The accumulation of blood continuing in proportion to the dilatation of these capillaries, the epidermic covering will finally break up. Then the blood itself, passing through either the passage created by the anterior passage of the leucocytes or through vascular ruptures of plausible probability, will make its way outwards. Hence the hæmorrhage, which will last as long as the cerebral excitement which gave rise to the attack which kept it up.

After lengthened consideration of the anatomopathological conditions, M. Warlomont refers the cause of these phenomena to a disturbance of the principal vaso-motor centre, situated in a space comprised within the limits of one millimètre behind the

quadrigeminal tubercles and from four to five millimètres in front of the lower extremity of the calamus. This region corresponds precisely with that in which the hypnotising aura is found, already designated by him as the starting-point of the ecstasies; he thence concludes that the ecstasies and the stigmata in conjunction constitute a combination to which he proposes to give the name of stigmatic neuropathy. He adds that the neuro-stigmatic combination is not the only one of its kind. Palpitations of the heart, exophthalmos, and goitre have long been known as isolated symptoms, and special entities possessing an absolutely independent genesis. Who, then, could have imagined that a day would arrive when these three morbid manifestations would be found united in the same person, under the influence of a common cause? This, however, has now come to pass in the case of Louise Lateau, and it is caused by a neurosis of the great sympathetic.

In an appendix to the report, M. Warlomont specially treats the question of abstinence, and he lays down the following propositions containing the opinions of the commission on the occurrences at Bois d'Haine.

1. The two expressions—relating to M. Virchow's dilemma, used by that investigator—cheat or miracle, should be put on one side. These stigmata and ecstasies are real, and are explained by physiology.

2. The phenomena displayed by Louise Lateau constitute a disease of the neurotic order. It may be conveniently classed in the nosological list, under the name of stigmatic neuropathy.

3. Louise Lateau works and expends caloric; every Friday she loses a certain quantity of blood by the stigmata; the gases expired by her contain watery vapour and carbonic acid; her weight has scarcely varied at all since she has been under observation; therefore she burns carbon which she does not derive from her own organism. Whence, then, does she obtain it? The answer made by physiology is that she takes food.

4. The abstinence of Louise Lateau, as affirmed, is contrary to the laws of physiology, and, consequently, there is no need to prove that it is a fabrication. As it is established that this fact is beyond those laws, it is for those who affirm it to demonstrate its truth. Until then, physiology must hold it to be an apocryphal statement.

ANATOMY AND PHYSIOLOGY.

HARNACK ON THE ACTION OF APOMORPHIA ON MAMMALS AND THE FROG.—E. Harnack (*Archiv für experiment. Pathol. und Pharmac.*, 1874, vol. ii., from the abstract in *Centralblatt für die Med. Wissensch.*, no. ii. 1875) says that, from the previous investigations on the action of apomorphia, it was believed that in this substance we possessed an emetic which, apart from its emetic action, did not exercise any important secondary effects on the organism. From the author's experiments, however, it appears that this substance acts on certain parts of certain animals in a very intense and deleterious manner.

To exclude the act of vomiting, and to obtain as clear a view as possible of the secondary effects of the drug, the author experimented on rabbits, which do not possess the faculty of vomiting. It was shown that

even 10 to 30 milligrammes (0.15 gr. to 0.45 gr.) of apomorphin produce death in the rabbit, whilst 5 to 10 milligrammes (0.075 to 0.15 gr.) are sufficient to produce important changes in certain bodily functions. The smaller doses threw the animals into a state of the highest excitement and uneasiness; they ran to and fro in the room, crawled into dark corners, and were very frightened. In addition, in most of them there was salivation. This condition ceased after a few hours, and the animals returned to the normal. If the doses employed were greater, unsteadiness of gait soon set in, the posterior extremities being first affected; the animals suddenly fell over in convulsions, the respiration ceased, and death occurred, and could not be averted by artificial respiration.

The frequency of the respiration was at first enormously increased, and, according to the author, this increase is to be ascribed to stimulation of the respiratory centre, and it occurs even after division of the vagi. This stimulation was followed by a diminution of the excitability, and ultimately by paralysis of the centre.

As to the question whether the convulsions are simply the consequence of the disturbance of the respiration, or are dependent on stimulation of certain central organs, the author seeks to decide by experiments on chloralised animals. These experiments showed, first, that in such animals, convulsions are absent; and secondly, that animals narcotised with chloral can bear much larger doses of apomorphia, and that death is accelerated by the occurrence of convulsions. The absence of convulsions, the author seeks to ascribe to the paralysis by chloral of those central organs, upon whose stimulation by apomorphia the convulsions depend; he assumes a direct stimulation of the central organs, and so it appears to him possible that, conversely, there would be difficulties in diminishing the activity or paralysing by narcosis the motor centres stimulated by apomorphia.

The author then touches the question as to the identity of the vomiting and respiratory centres, and, from experiments on narcotised dogs, decides against this view. He says, 'Proceeding on the assumption of the identity of the respiratory and vomiting centres, one must expect that in such narcosis apomorphia is able without hindrance to produce vomiting, in that, the respiratory centre has not lost its excitability; and we have seen in rabbits, that in this condition the centre undergoes a powerful stimulation by apomorphia. One cannot, however, produce vomiting during the narcotic condition.'

In the frog the author observed first a stimulation, and then a complete paralysis of the centre of voluntary movement; later the irritability of the transversely striped muscles is diminished, and with large doses completely paralysed, without their becoming rigid. This paralytic action on transversely striped muscles apomorphia possesses in common with several other emetic substances, e.g. emetin, tartar emetic, cyclamin, and asclepiadin, a substance which, in its action, according to Harnack, is analogous to apomorphin.

Lastly, the author attempts to establish, experimentally, in what way the increase in the frequency of the pulse accompanying vomiting arises; whether it owes its origin to a diminution in the tonus of the vagus, or is due to stimulation of the accelerating apparatus of the heart. Supported by the fact that stimulation of the accelerating nerves produces in-

crease of the frequency of the pulse without increase of the blood-pressure—that, on the contrary, diminution of the tonus of the vagus is accompanied by increase of blood-pressure—the author observed the pulse and blood-pressure after injection of apomorphia into dogs, and found that increase in the frequency of the pulse produced by the act of vomiting is not accompanied by an increase of the blood-pressure; therefore, that the relations existing during the act of vomiting are analogous to those which are produced by artificial stimulation of the accelerating nerves.

HEIDENHAIN ON THE SALIVARY GLANDS.—R. Heidenhain (*Pflüger's Archiv*, vol. ix. and abstract in *Centralblatt für die Medicin. Wissenschaften*, no. 1, 1875) says that Rossbach questioned the antagonistic action between atropin and physostigmin in relation to the secretory fibres of the chorda tympani, as asserted by Heidenhain. To establish his results, Heidenhain atropinised curarised dogs by injection into the blood, until stimulation of both chordæ no longer produced secretion, ligatured both subclavian arteries to control the circulation in the submaxillary glands, and injected a solution of physostigmin under previous occlusion of the carotid into the branch of the submental artery going to the hilus of the gland. The immediate consequence was that, on the side where physostigmin was employed, the chorda became again excitable, whilst stimulation of the other chorda gave no result, when, in order to make the conditions of the experiment alike in the two glands, a solution of an indifferent salt was injected into the artery of the other gland.

Gianuzzi showed in 1865 that, when the salivary secretion was arrested by the injection of dilute acid or solution of soda into the excretory duct, stimulation of the chorda tympani produced a very considerable œdema; and he concluded from this that the secretion normally consists of two acts, of the increased transudation of lymph by paralysis of the vessels, and of the formation of saliva from this material by stimulation of the secretory nerves. Heidenhain shows that this hypothesis is untenable, in that, after the injection of atropin into the gland, stimulation of the chorda caused acceleration of the blood-current, but never pronounced œdematous swelling. The latter is also absent on injecting an indifferent fluid into the excretory duct after atropinising, but occurs at once when a dilute acid or soda solution is used instead of the indifferent fluid. The author suggests that the œdema arises from diffusion, caused by the differences of the blood-fluids and the acid or soda solution injected bathing the vessels.

W. STIRLING, D.Sc., M.B.

BLAKE ON THE USE OF THE MEMBRANA TYMPANI AS A PHONAUTOGRAPH.—An interesting series of acoustic experiments have been carried on in the United States during the past year, by Dr. Clarence Blake and Professor Graham Bell (*Boston Medical and Surgical Journal*). Some of the results were recently brought before the Boston Society for the Advancement of Medical Science, but a fuller report is promised shortly.

A remarkable feature of the experiments was the apparatus employed, viz., the human membrana tympani, with the ossicula; it was adapted to the purpose as follows. A specimen, as nearly normal as possible, was obtained; the temporal bone was removed and carefully cleaned, and the lining of the external auditory canal cut away to a line close to the mem-

brana tympani. The thin plate of bone forming the roof of the tympanic cavity was then cut away by means of a bone-chisel, great care being necessary to avoid disturbing the ossicula. The articulation between the incus and stapes was next divided by means of a narrow-bladed knife, and the tendon of the tensor tympani muscle either cut across close to its insertion into the malleus, or else left for experiment. A section was then made with a hair-saw through the tympanic cavity from behind forwards, separating the petrous from the mastoid and squamous portions of the temporal bone, the section being carried between the incus and stapes. Great care is necessary in this part of the operation, for the slightest touch of the saw on the incus will so derange the relations of the ossicula as to render the specimen useless for experimental purposes. The inner surface of the membrana tympani is thus exposed with the malleus and incus in position; this is carefully cleansed from bone-dust, and must be kept moist with glycerine and water. A bell-shaped mouth-piece is then fixed into the external auditory meatus, and the whole screwed to a stage plate opposite a carrier which is moved by a weight attached to a cord passing over a pulley at one end of the stage. A style, made of a fine fibre of split straw is glued to the descending process of the malleus or incus; a slip of smoked glass is placed on the carrier; a note is sounded in the bell-mouth and the weight let go. As the glass travels past the end of the style, a wave-line, corresponding to the character and pitch of the musical tone, is traced upon the smoked glass.

Not only does the human ear, when thus prepared, make a most delicate phonograph and logograph, but some interesting researches have been made into the acoustic properties of the membrana tympani itself.

J. W. LANGMORE, M.D.

RABUTEAU ON THE DAILY EXCRETION OF URINE IN HEALTH.—In the *Gazette Médicale de Paris*, for Jan. 30, 1875, Dr A. Rabuteau publishes a series of experimental observations, instituted to determine the quantity of urine daily excreted by persons in health, in continuation of some others which he put forth in a note to the Société de Biologie in 1869.

In his present paper Dr. Rabuteau affirms the commonly received opinion, that a larger quantity of urine is eliminated in winter than in summer, to be founded on mere presumption; and maintains that really it is only in those individuals who drink without being thirsty, or who abuse alcoholic liquors, that the winter average seems to be greater. If persons in health preserve a fairly uniform diet, and drink only when thirsty, their daily excretion of urine is pretty constant.

The author gives a table of mean results, deduced from observations made with more or less regularity from Dec. 1867 to April 1870; from which he cites two examples to show that the smallest mean quantity (877 grammes) was observed during the very hot weather of July 1868; while a nearly identical result (880 grammes) was obtained during the very cold weather of March 1869. The highest mean quantity (1,037 grammes) is recorded for June 1868; but the temperature of the month is not mentioned.

Taking all circumstances into consideration, the author considers that the average quantity of urine excreted by persons in health is 1,200 grammes, or approximately, 1,175 cubic centimètres (about forty-

two ounces) in twenty-four hours ; and further, that the daily amount increases with age.

BUSHELL ANNINGSOON, Cambridge.

GALIPPE ON THE ACTION OF JABORANDI BARK. Galippe and Rochefontaine (*Progrès Médical*, February 13, 1875) state that infusions of jaborandi bark produce the same physiological effects as infusions of the leaves. Among those effects, they enumerate diarrhoea and marked dilatation [contraction? *Rép.*] of the pupils.

GALIPPE ON ABSORPTION OF CANTHARIDINE.—To prove that cantharidine is taken up by the blood in considerable quantity, the following experiment was performed (*Gaz. Médicale de Paris*, February 8, 1875). A dog was poisoned with five centigrammes of cantharidine, administered in the form of a pill. After the specific effects of the drug had shown themselves, the femoral artery of the poisoned animal was connected with that of a healthy dog, and transfusion was allowed to go on for several minutes. The second dog presented the symptoms and *post mortem* appearances characteristic of the poison.

E. BUCHANAN BAXTER, M.D.

RECENT PAPERS.

On the Doctrine of Oculation. By Dr. Patruban. (*Allgemeine Wiener Medizinische Zeitung*, nos. 3, 4, 5, and 8.)
The Poison of the Water Salamander. By Dr. D. Fornara. (*Lo Sperimentale*, February, 1875.)

On the Reflex Phenomena connected with the Vessels of the Skin, and on Reflex Sweating. By Dr. Botkin. (*Berliner Klinische Wochenschrift*, nos. 7 and 8, 1875.)

On the Expansion of Osseous Tissue. By Dr. Wolff. (*Berliner Klinische Wochenschrift*, nos. 6, 7 and 8, 1875.)

PATHOLOGY.

MONOD ON NON-CARCINOMATOUS TUMOURS OF THE BREAST.—In a very interesting contribution to the study of non-carcinomatous tumours of the breast, by Dr. Charles Monod,* published in the *Archives Générales de Médecine*, January, 1875, in order to contrast non-carcinomatous with carcinomatous tumours of the breast, the author first succinctly describes the anatomical peculiarities of the latter, insisting on this point—the gland, its constituent elements, acini, and excretory ducts, disappear as the carcinomatous tissue develops. Quite otherwise, he proceeds to say, is the physiognomy of the non-carcinomatous tumours ; here the characteristic tissue of the gland persists, distorted though it may be. This persistence, he thinks, explains the confusion of tumours made by many authors under the name of adenoma.

The object of his communication is to show that the anatomical peculiarity of these tumours is not to be sought in the glandular element, always more or less well preserved, but in the intermediate tissue ; and that only by a careful analysis of this tissue can their exact nature be defined.

He acknowledges that this view of the matter is not new, but thinks, from the tenor of recent discussions, that it may be useful to bring it again before the public, and to state the results of his own personal researches.

He refers to the naked-eye appearances of

non-carcinomatous tumours which present some anatomical features in common. 'It has been completely demonstrated that these cavities' (which he had just described as visible in a tumour by the unaided eye) 'are nothing but the glandular cavities of the breast, abnormally developed and deformed by the pathological tissue which has arisen in the gland. They have been described by M. Ranvier under the name of *kystes lacunaires*, to distinguish them from the true cysts which are met with in the breast. These cavities all present a perfectly smooth surface, which may be easily shown, microscopically, to be lined with epithelium,' by the process of staining by nitrate of silver. This epithelium is also to be seen in sections made after hardening.

He points out that microscopical examination of scrapings only is insufficient, as the elements of the tissue intermediate to the *culs-de-sac* must often escape attention. For a complete anatomical diagnosis, it is insisted that the examination of the separate elements must be followed by a study of their reciprocal arrangement.

He goes on to describe the relation which may be seen to subsist between the cavities, ducts, and epithelial surfaces in the tumours. 'The presence of the epithelium is the only point in common between them. But it is not in the glandular element that the characters necessary for distinguishing the different tumours of the breast must be sought. These distinctive characters are only to be found in the stroma between the acini and the dilated excretory ducts, in the tissue which constitutes the walls of the cavities, or the growths into their interior.' 'This tissue, in the preparations which we have examined, shows itself sometimes with characters of well formed fibrous tissue, or, more often, young tissue abundantly provided with cellular elements ; sometimes showing in all points the appearance which sarcoma and myxomata develop in other parts of the body.' 'We do not lay stress on the histological differences which separate these three varieties of pathological tissue. In some cases difficulty is experienced in distinguishing them from one another.' 'If we are right in the way we have understood the constitution of the tumours we are studying, it is evident that they must be distinguished and consequently named from the nature of their stromata.' 'In short they must be considered as fibromata, sarcomata, or myxomata of the breast, and not as adenomata more or less transformed.' 'Yet it does not follow that the idea of a concomitant glandular hypertrophy must be absolutely set aside.' 'The increase in the number of acini is possible and even probable. Indeed, if on the one hand, we consider the slight proportion of glandular element in the virgin breast, and, on the other hand, the great number of dilated and deformed acini met with in the small fibrous tumours of the organ developed in the same circumstances, we are forced to admit that a hypertrophic action propagated in the gland has accompanied the neoplastic formation in the intermediate stroma.

'In favour of this view, the argument of MM. Cornil and Ranvier (*Manuel d'Histologie Pathologique*) may be cited. It is based on the examination of tumours of this class, recurring after ablation. The tumour no longer contains gland structure ; an evident proof that in the original tumour the glandular hypertrophy constituted only an accessory element.' 'Non-carcinomatous tumours of the breast appear generally

* Chef du Laboratoire de l'Hôpital des Cliniques.

under two principal forms; one, commonly small and exhibiting few, if any, true cyst-cavities; and a second, in which the cystic dilatations are often of considerable diameter (cysto-sarcoma); its size is ordinarily voluminous, and it is accompanied sooner or later by ulceration and even perforation of skin and protrusion of growth. The first form ordinarily behaves like fibroma of the breast, sometimes, however, like a sarcoma. This last fact explains the relapse of tumours apparently benign, or their suddenly rapid increase, or again their apparent transformation into cancer. 'The two forms, however, belong to the same fundamental type, and constitute a natural group of tumours, which should anatomically and clinically be separated from carcinoma.'

Next, the author gives an interesting though brief retrospect of the diverse phases of the history of these tumours from the time of Astley Cooper. This writer divided benign tumours into two classes; the first, which he termed hydatid disease, comprised different varieties of cysts of the breast; chronic mammary tumours constituted the second class.

'A. Cooper did not perceive the relation which existed between these two groups, so different in appearance. It could not be otherwise, from the insufficient means of examining these tumours at his disposal. The intervention of the microscope did not at first seem to throw much light on the question. It, however, enabled John Müller to establish the group of cysto-sarcoma phyllodes,' which is characterised by projections and numerous vegetations penetrating into the cavity of the tumour. J. Müller thus confirmed the idea already enunciated by A. Cooper, that there might be developed in the breast, tumours, quite distinct from cancer, constituted by a particular neoplastic tissue, distinct equally from simple, partial, or total hypertrophy of the mamma. However, Müller made the mistake of not studying the growths described by Cooper under the head of chronic mammary tumour.

Lebert, Velpeau, Robin, and Broca fell into the opposite error in only seeing in non-cancerous growths normal gland-elements without true neoplasia. The names which they gave to these tumours clearly indicate the idea which they had of their nature—partial hypertrophy of the mamma (Lebert), adenoid tumours (Velpeau), adenoma (Broca). Had these authors studied the changes in the interacinary tissue of the gland, they would then have distinguished in the group of tumours which they designate adenoma, varieties corresponding to clinical experiences; they would soon have remarked that, in fact, these tumours, reputed benign, were far from deserving all the same prognosis. Busch, in Germany, demonstrated that the clefts or lacunæ seen in fresh sections were in communication with the gland-ducts. He inserted a fine probe in one of the galactophorous ducts near the nipple, and followed it into the cystic spaces, great and small, of the tumour. Baur later arrived by the same means to the same conclusion.

Passing over the works of Birkett, Paget, Mettenheimer, Schuh, Rokitansky, and Reinhardt, the author quotes from a communication of M. Verneuil to the 'Anatomical Society,' where he described a tumour which preserved the glandular appearance, but presented fibro-plastic tissue in its walls. 'Trusting to the form only, the surgeon might believe he had to do with a hypertrophic tumour only, when in reality he had to deal with a fibro-plastic growth most

subject to relapses.' Billroth's memoir on non-cancerous tumours of the breast is mentioned as a remarkable work. He gave these growths the name of adenoid sarcoma to distinguish them from the fibrous, gelatinous, encephaloid, and medullary sarcomata. The author remarks that the qualification adenoid simply denotes the place where the neoplasm has developed, and thinks that the distinction drawn by Billroth was illusory. 'The fundamental idea of Billroth's work was, however, right.' This opinion has for a long time been maintained by M. Ranvier, in several communications made to the 'Anatomical Society,' and recapitulated by him in his *Manuel*. It was he above all who, in France, opposed the old conception of adenomata, according to Lebert and others. Virchow at the same time, in Germany, arrived by another route to analogous conclusions. In the *Traité des Tumeurs*, as in the work by MM. Cornil and Ranvier, it is not a question of adenoid tumours or adeno-sarcomata of the breast, but solely of sarcomata, fibromata, and myxomata of the mamma, of which the study constitutes no more than a particular one of general sarcomata, fibromata, and myxomata.

Lastly he briefly mentions the works of M. von Wyss,* who follows the views of Billroth and Virchow, and the work of M. Cadiat,† who accepts the ideas of Velpeau and Lebert, and is therefore of opinions opposed to the author. JOHN CROFT.

MEDICINE.

LORAIN ON CASES OF SUDDEN EMOTIONS IN WOMEN PRODUCING PERSISTENT NEUROSES, SUCH AS HYSTERIA, CHLOROSIS, CHOREA, AND PARALYSIS AGITANS.—M. Lorain, after noticing the popular tendency to argue on the *post hoc ergo propter hoc* principle in nearly every disease, asserts that this tendency has caused medical men in many cases to treat such accounts with scepticism. 'We have good reason,' he says, 'to reject these too facile explanations; but should we therefore always refuse them, in a spirit of routine, or should we sometimes admit them, and to what extent?'

With a view to the settlement of these questions, he submits to notice the following reflections on cases which have occurred in his own experience. In each of these cases there has been some sudden emotion followed by neuroses, which have persisted for a greater or less period.

Other considerations arise from the study of these cases. Among these are the following. Does the accident decide the seat of the morbid manifestations which follow it? Have such accidents corresponding morbid conditions? Is it right to call a woman hysterical who suffers from hemiplegia, or who falls into a state of clonic convulsions with globus hystericus and other morbid sensations?

Shall a woman, however, who becomes after a similar accident choreic, be excluded from the ranks of hysterical patients because of her chorea?

Is it also necessary to make a separate class for chlorotic patients?

The author protests against such exclusiveness,

* Hans Von Wyss, 'Beitrag zur Kenntniss der Brustdrüsen Geschwulste,' Inaug. Diss., Zurich, 1871.

† Cadiat, 'Du Développement des Tumeurs cystiques du Sein,' *Journal de Robin*, 1874. No. 2, p. 183, 2 pl.

and proposes that all the cases of neuroses occurring in women after sudden accidents should be included in one term, *Feminisme*.

Among the observations recorded are the following. Two girls suffered from chorea following fright. At the time of the accident they were menstruating, and in consequence of it the discharge was immediately arrested. In one the chorea is combined with rheumatic symptoms; in the other there are so many undoubted hysterical symptoms that she must be classed among the hysterical patients. [Is it not probable that the latter of these two patients has imitated the choreic symptoms of the former? They are reported to have been in the same ward.]

In another case, a girl, aged fifteen, who had been ailing and out of sorts for some time, was startled during menstruation by a flash of lightning, which struck the ground about thirty yards from her. The catamenia were arrested after having lasted for but a small portion of the time it generally did. The next day she was attacked with chorea which became very severe.

Another girl, aged twenty, after the bite of a horse, was seized with hysterical convulsions, which were followed by loss of cuticular sensibility, and ataxic symptoms. In another case of a girl, aged twenty, after the receipt of some bad news, hysterical paralysis occurred.

The last case related is that of a girl, aged seventeen, who was attacked by paralysis agitans, after having been frightened during the siege of Paris, by the explosion of a shell which killed several people who were standing near her.

W. KESTEVEN, JUN.

MEIGS ON PNEUMO-HYDRO-PERICARDITIS.—An example of this very rare cardiac lesion is recorded by Dr. Meigs in the *American Journal of the Medical Sciences* for January. The patient was a delicate young man, eighteen years of age, of tubercular diathesis and with a strong family predisposition to rheumatism. As the result of exposure to cold and wet he was attacked with pleurisy, first on the right and then also on the left side; this gave rise to no great amount of effusion, but was accompanied by high fever, much pain, and rapid prostration; there was no renal disease. At the end of three weeks cardiac friction appeared, and then signs of effusion into the pericardium. A few days later, just a month after the commencement of the illness, Dr. Meigs on approaching the patient, heard, at a distance of some feet from the bed, a peculiar splashing noise like the working of a churn. On listening over the præcordium the peculiar splashing sound was heard to recur with each stroke of the heart; the heart-sounds had an extraordinary reverberating amphoric character; metallic tinkling was also heard; the percussion-note over the cardiac region was found to be tympanic. The facts that the resonance was confined to the middle portion of the chest, and that the succussion-sound was precisely synchronous with the heart's action, left no doubt that there was air or gas, as well as fluid, in the pericardium. The stomach was not much distended; there had been no signs of any pulmonary cavity; and the existence of vesicular breathing all round negated pneumo-thorax.

The patient died three days afterwards, and the *post mortem* examination was made with most exemplary care and patience. On removing the whole contents

of the thorax and inflating the lungs through the trachea, no air entered the pericardium, but, on opening the œsophagus from behind, a depression about half an inch in diameter was seen on its anterior wall just below the bifurcation of the trachea. In the centre of this hollow was a small perforation, with ragged, dark, ulcerated edges, which communicated obliquely with the apex of the pericardial sac; the opening was just large enough to admit the point of a full-sized catheter. There had evidently been a partial spontaneous evacuation of the pericardial effusion by way of the œsophagus.

Dr. Meigs, in commenting on this case, gives references to all the similar cases he can find; there seems to be only about a dozen on record.

DA COSTA ON CEREBRAL RHEUMATISM.—The *American Journal of the Medical Sciences* for January contains a paper on this subject by Dr. J. M. Da Costa, professor of medicine at the Jefferson Medical College. The name cerebral rheumatism owes its origin to an hypothesis long disproved, viz., that the occurrence of restlessness and delirium in acute rheumatism was due to actual inflammation of the membranes of the brain—to 'rheumatic meningitis.' Meningitis may occur under these circumstances, but it is a rare complication, and in the great majority of the cases of cerebral rheumatism there is no meningeal lesion whatever. Still the name has acquired a definite signification as regards the class of cases which are included under it, and it is therefore convenient to use it.

Recently the association of these brain-symptoms with high temperature has been noticed, and 'hyperpyrexia' has been supposed to be the cause of the delirium; but Dr. Da Costa says that in many cases of cerebral rheumatism the temperature is not very high, and he relates a remarkable case in which, though a temperature of 110° was attained, there was an entire absence of cerebral symptoms. No artificial cooling or special treatment of any kind was employed, and the patient recovered. Dr. Da Costa is inclined to refer the brain-symptoms partly to the circulation of vitiated blood, and partly to disturbance of the cerebral circulation consequent on the plugging of numerous small arteries by fine emboli. These may be formed in the heart, but more often originate in the arteries—thromboses: he relates some cases in which this state of things was verified *post mortem*. The possible existence of uræmia must not be forgotten as an occasional cause of similar symptoms. Dr. Da Costa states, however, that the literature of cerebral rheumatism is not yet as complete as the importance of the symptoms seems to deserve, and that much clinical work has yet to be done before the subject can be said to be fully elucidated.

HOOD ON CARDIAC WEAKNESS AS A REMOTE CONSEQUENCE OF INJURIES BY RAILWAY COLLISIONS AND OTHER ACCIDENTS.—Dr. Hood calls attention (*Lancet*, February 27) to the value of a careful examination of the pulse and of the action of the heart as an aid to the diagnosis of the notoriously difficult class of cases referred to above. He states that in a *bonâ fide* case of injury from railway collision, along with the common evidences of nervous depression, symptoms of an hysterical character, there will frequently be found a weak cardiac impulse, and a feeble, or even intermittent pulse. The patient may look well, but is generally

pale, and is disinclined for, or incapable of any exertion, either mental or bodily.

Dr. Hood advocates blood-letting after a railway accident, not indeed immediately, but as soon as reaction has been established. The heart, he says, is partially paralysed; its action is weakened by the nervous shock, and by reducing the volume of fluid which it has to move, we may quickly enable it to carry on the circulation without distress. Without this assistance it may be long before the organ recovers its lost ground, or it may never regain it completely. He adds, 'It is well-known to those who are familiar with railway accidents and with military surgery, that those who have lost blood copiously do not suffer from the nervous depression so common among those who have sustained injuries unattended by hæmorrhage.'

J. W. LANGMÔRE, M.D.

BOUCHARDAT ON THE NERVOUS SYMPTOMS ASSOCIATED WITH DIABETES.—Bouchardat (*Bulletin Général de Thérapeutique*, February 28, 1875), enumerates the following: partial anæsthesia, hyperæsthesia, cramps, insomnia, lumbar pains, enfeeblement of memory and of the power of continuous mental application, drowsiness after meals, irascibility, and melancholy. The sleeplessness is really due to the incessant calls to pass urine, by which the patient is roused as soon as he begins to lose consciousness. The loss of memory is most apparent in persons who have passed middle age; the natural invasion of this mode of mental failure being accelerated tenfold. Indolence, apathy, and inaptitude for intellectual work are very usual symptoms. In common with all the other nervous troubles incidental to the glycosuric condition, they yield quickly to the influence of appropriate regimen and treatment.

E. BUCHANAN BAXTER, M.D.

FORENSIC MEDICINE.

WOODWARD ON THE DIAGNOSIS OF BLOOD-STAINS BY THE MICROSCOPE.—Dr. J. J. Woodward, United States army (*Monthly Microscopical Journal*, February, 1875), criticises the assertions made by Dr. J. Richardson, in a paper published in the *American Journal of the Medical Sciences*, July, 1874, as to the possibility of distinguishing human blood from that of certain other mammals, by direct measurement of the corpuscles, even in dried stains. These statements were criticised at the time of their appearance (*LONDON MEDICAL RECORD*, September 9, 1874), and Dr. Woodward shares, or feels even more strongly, the doubts and misgiving there expressed. He thinks it only fair to Dr. Richardson, to print a communication from him to the following effect. Dr. Richardson, it appears, was fully aware of the difficulty of making anything more than a differential diagnosis even in the cases he specified, and of the impossibility of distinguishing the blood of man from that of a monkey or dog; but he had refrained from giving prominence to these facts, lest an improper use should be made of them in the defence of criminals. Dr. Woodward, following the practice of many of the best writers on medical jurisprudence, entirely dissents from this view of the matter, and has no hesitation whatever as to his duty in speaking the whole truth on the subject.

Dr. Woodward points out that, though the aver-

age diameter of the red corpuscles of the dog and man, as given by Gulliver and Welcker, might seem to show a certain small but constant and measurable difference, still this is not borne out by an examination of the original essays of these authors, which show that extreme sizes, both smaller and larger than the average, are met with, and these differ so much as to make the average difference quite inapplicable. Thus Gulliver gives the average diameter of the human red corpuscle as $\frac{1}{3200}$ of an inch; but says that, in a single drop of blood, corpuscles may be found either a third larger or a third smaller than the mean size, or varying from $\frac{2400}{1}$ to $\frac{4800}{1}$ of an inch. Again, Gulliver gives $\frac{1}{3542}$ as the average size of the red blood-corpuscle in the dog; but also mentions $\frac{1}{4000}$ and $\frac{1}{3000}$ of an inch as common sizes. Hence, evidently no conclusion whatever can be drawn from the difference of the averages. Moreover, the absolute value of these results is diminished by the uncertainty as to the accuracy of any micrometer, and by disregarded variations produced by the correction of the object-glass; in fact, Gulliver himself only claims 'relative exactness' for his results. The measurements of Welcker give even less support than those of Gulliver to the notion that the blood of the dog can be distinguished from that of man by the microscope. His measurements as ordinarily quoted, give '00774 of a millimètre ($\frac{1}{3280}$ inch) for man, and '0073 (or $\frac{1}{3480}$ inch) for the dog; but the latter number was derived from observations on a single dog only; while in one case he found the blood of a healthy man to give a mean less than these, or '00724 millimètre, and the extreme measurements vary very considerably from the mean. The results of other observers, though they mostly give the average higher for human blood than for that of the dog, still show considerable variation, and one observer even makes the corpuscles of the dog larger.

Dr. Woodward's own observations show no constant difference between them. The mean of fifty corpuscles taken at random was seldom twice the same, and sometimes that of human blood, sometimes that of dog's blood, was a trifle the larger. He details with great minuteness the precautions taken in measuring specimens of human blood from five individuals, and dog's blood also from five individuals, not fewer than fifty corpuscles being measured in each specimen and the averages regularly taken. The size most frequently measured was equal in human and in dog's blood, viz., $\frac{1}{3333}$ of an inch; and the great majority of corpuscles varied in both cases from $\frac{1}{4167}$ to $\frac{1}{2941}$. The variations produced by drying appear to be extremely small; but this is of less consequence, as there could obviously be, to say the least, no greater certainty than in the case of fresh blood. The alterations produced by water are, on the other hand, considerable. The general result is, therefore, to confirm the accepted doctrine that the distinction of human blood by means of the microscope is not within the resources of science.

[We believe that most microscopists of experience will agree with Dr. Woodward, both as to the impossibility of the attempted distinction and the duty of the medical witness. We await Dr. Woodward's criticisms on the question of distinguishing the blood of sheep and oxen from that of man.—*Rep.*]

J. F. PAYNE, M.B.

SURGERY.

MICHEL ON THE USE OF SULPHURET OF CARBON IN THE EXTERNAL TREATMENT OF CHRONIC ULCERATIONS.—In the *Journal de Thérapeutique* for Jan. 1875, p. 48, Dr. Evariste Michel relates his trials of sulphuret of carbon in M. Boys de Loury's wards, when Dr. Michel was his house surgeon at Saint-Lazare in 1867 and 1868. The results obtained were most beneficial. Sulphuret of carbon is used like the caustic liquids. In order to obtain the required effect, it is sufficient to touch the ulcerated tissues with a pledget of lint saturated with the liquid in the same way as with most acids. The frequency of the dressings depends on the degree of chronicity of the ulceration; a very old and inactive ulcer will require moistening every day, whilst less frequent applications, every two or three days, will suffice for a more recent and excitable ulcer. Sulphuret of carbon is not a caustic; and its contact with the mucous membrane does not leave any scar. Neither does it produce any discoloration except the amount resulting from its constant use, which characterises reparation of the skin. It gives acute but only instantaneous pain; and, whilst the suffering consecutive on a somewhat extensive cauterisation with acid nitrate of mercury sometimes lasts for many hours, it is rare that the pain due to the sulphuret of carbon is not entirely dissipated in a few minutes. This pain, which is somewhat intense on the first application, is less so at the second, and diminishes in proportion as the use of the dressing is prolonged, and as the cicatrising process becomes confirmed. M. Michel has never met with the smallest accident which could be attributed to the absorption of the sulphuret of carbon by impregnation; for although, like the majority of volatile substances, it penetrates deeply, it evaporates quickly. He adds that he has always worked on relatively limited points, and that, for instance, he had never ventured in the treatment of vaginitis to touch the whole of the vaginal mucous membrane.

ECHEVERRIA ON RESECTION IN COMPOUND FRACTURE OF THE ANKLE.—The opinions of surgeons vary greatly as to the treatment of these compound fractures. Dr. Echeverria has (*Thèse de Paris*, 1874) given an account of most of these contradictory opinions, analysed a certain number of facts, and prepared a table of the different varieties of torsion, with the view of offering a solution which may be useful to surgeons. His table comprises cases of complete resection, which are the least numerous; then a large number of partial resections, of the lower end of the two bones of the leg, of the tibia alone, and of the fibula alone, with the corresponding results. The conclusions which he draws are these. 1. Total or partial resection is indicated when the bones of the leg protrude from the wound, or when the patient is powerless in consequence of his fracture being irreducible. 2. It should, however, be avoided when reduction is easy by an apparatus, or when there is wrongly consolidated fracture of a neighbouring bone threatening gangrene of the soft parts, or considerable contusion of them; fractures of the tibia, with fissures extending into the substance of the bone, etc., are indications against the operation. The subperiosteal method should be preferred. Absolute immobility is

one of the conditions of success. Cure takes place by ankylosis or pseudarthrosis. This operation is a less serious one than amputation; it preserves the limb, and exposes the patient to less danger than simple resection. There may not be any shortening on account of the bony reproduction; but, if the contrary should occur, it is easy to remedy it by means of an appropriate covering for the foot.

TERRILLON ON CONTUSION OF THE LIVER.—In the number of the *Archives de Physiologie* for February, Dr. Terrillon relates the results of certain experiments performed on dogs. He omits to mention whether these experiments were performed while the animals were under chloroform. Indeed it does not seem that, if they were in this condition, they would have been spared much pain. The description of the proceedings here given is translated verbatim from the author.

The contusions were made by sharp blows on the right hypochondrium, the dog being placed on his left side. Mallets of different forms were used; in some of them the striking surface was narrow, in others broad and spread out, in order to affect a larger surface. It will be easily comprehended that the exact force used cannot be even approximately stated; but I will use the expressions "contusion forte" and "contusion très violente" to indicate the difference which existed. The wounds were made by means of a knife plunged into the liver perpendicularly to its surface, in order to make a deep section. In other cases, a longitudinal cut was made not deeper than about one centimètre. Lastly, I have in two cases crushed one of the lobes of the organ between my fingers, in order to produce a rupture with irregular edges.

[It appears to us that the results obtained by the operator, however important they may have seemed to him, could never in any way justify such cruel proceedings. The benefits accruing to the human race are the usual excuses made in favour of vivisection; but in this case that plea cannot be used as an excuse. The morbid conditions produced must have been of such a nature as to be of excessive rarity, if, indeed, they ever exist in mankind. This fact renders the results obtained by the operator of such trifling importance that it is useless to notice them. One would like to know what the Society for the Prevention of Cruelty to Animals would have said, had these operations been performed in England.—*Rep.*] W. KESTEVEN, JUN.

HUTCHINSON ON TRAUMATIC NECROSIS OF THE CRANIAL BONES.—The second of Mr. Jonathan Hutchinson's course of lectures on injuries of the head (*Medical Times and Gazette*, February 27 and March 6), is devoted to clinical remarks on traumatic osteitis, necrosis, and pyæmia.

Laceration of the pericranium, and consequent inflammation and death of the portion of bone so exposed, is of far more serious consequence after injuries of the head than any secondary effects likely to ensue in the brain itself. This is owing to the frequency with which necrosis of the cranial bones gives rise to meningitis, or to pyæmia, or both. Pyæmia is the greater danger of the two: it may be induced by the death of a very small area of bone; whilst, if any considerable area be denuded, the recovery of the patient is the exception rather than the rule. This, however, only refers to traumatic necrosis—the prognosis in cases of necrosis from

disease, *e.g.* syphilis, is more favourable. Not only may the local damage appear to be very slight, but the constitutional state of the patient may appear highly favourable to recovery; the patient may be in the most excellent condition and the wound itself look perfectly healthy up to within a day or two of the first rigor. It has been suspected by some that residence in a hospital atmosphere favours the occurrence of this complication. Mr. Hutchinson thinks that proof of this is wholly wanting: several of his most typical cases occurred in those who had been at home until the serious symptoms supervened and were only brought to the hospital because pyæmia had set in.

Mr. Hutchinson thinks that the use of the trephine in the first instance rather diminishes the risk of pyæmia; out of all the cases in which he has performed this operation pyæmia has occurred but once: at all events, his confident opinion is, that the surgeon may quite put aside any question of increased risk of pyæmia and trephine, or not, in any case as the circumstances seem to require.

J. W. LANGMORE, M.D.

DEMARQUAY ON A NEW MANNER OF OPERATING FOR STRANGULATED UMBILICAL HERNIA.—Dr. Demarquay, in an article in the *Tribune Médicale*, quoted in the *Bulletin Général de Thérapeutique* for February, describes an operation in which an oblique incision is to be made on the left side from the middle of the hernial tumour on to the abdominal wall. The integument and superficial fascia having been divided, the neck of the sac is to be reached and a small incision made into the lower part of it. The left forefinger is then to be introduced through the opening, and the edge of the hernial aperture divided to the extent required by the case. This incision is to be made on the left side, and through the thickness of the abdominal wall. The wound is to be afterwards closed very carefully by sutures and covered by collodion. The right side is avoided in the operation on account of the proximity of the umbilical vein, and the middle line presents an objection in the linea alba. By this operation the hernial sac is only injured to a slight extent, and air is not allowed to enter the abdominal cavity.

[It is evident that this operation would be insufficient in those cases of umbilical hernia where the strangulation is due to twisting of the intestine in the sac, or to the presence of old bands of adhesion. This modification cannot be said to be new to English surgeons.—*Rep.*]

Dr. Demarquay expresses a hope that this limited operation, performed early, may lead to good results. He says that what is wanted for success in the hospitals in Paris is early operation in cases of strangulated hernia.

[London surgeons would echo this statement. Delays, and the administration of aperients before the cases reach the hospitals, too frequently prevent the operation from being the means of saving life.—*Rep.*]

• JOHN CROFT.

RECENT PAPERS.

On the Diagnosis of Tumours of the Breast. By Thos. Bryant, F.R.C.S. (*Medical Times and Gazette*, February 27.)

On the Causes of Death after Operation for Strangulated Hernia. By F. H. Edmonds, L.R.C.P. (*British Medical Journal*, February 27.)

SYPHILOGRAPHY.

VAN BUREN ON THE VITALITY OF THE SYPHILITIC POISON.—Dr. Van Buren relates in the *American Archives of Dermatology* for January, two interesting cases of constitutional syphilis which, as he says, illustrate several controverted points relating to that disease.

The first is that of a physician who, while a student, got a small insignificant primary sore, for which he had no treatment. It was followed by a slight papular rash; for this he took some laxative medicine, but no mercury in any shape. The rash disappeared, his health remained perfect, and no further ill effects followed. Nine years after the chancre, a swelling appeared upon the cranium; this caused no uneasiness and was disregarded; in fact, its nature was not suspected, so completely had the long interval of health calmed the patient's apprehensions. The node remained solid, hard, and untreated for eleven years, the general health continuing vigorous. But now the patient was prostrated by a severe illness, having no relation to syphilis, and on recovering from it the node softened. It was opened as an abscess, but, instead of healing, the edges sloughed extensively, exposing the bone over a circular area more than two inches in diameter. And this was the state of the patient, the bone being necrosed, when a year later he came to consult Dr. Van Buren.

Case 2.—A gentleman acquired a slight urethral discharge, for which he was treated with nitrate of silver injection, but took no mercury. A year after this he married and had one child; his wife never conceived again, but she remained well and had no miscarriages. She was treated by a specialist for some uterine displacement, the result of this confinement. The child also grew up healthy.

Twelve years after this urethral chancre (as Dr. Van Buren believes it to have been) some ecchymatous spots appeared on the patient's legs; for these he was treated with arsenic, but Dr. Van Buren states that when he came to him the scars of these 'boils' were clearly characteristic of syphilis. A year later the patient's general health failed; he had hemiplegia, double vision, loss of memory, and other evidences of failing brain-power. He was told that he was threatened with softening of the brain, that he must give up his work entirely and travel. He accordingly came to Europe, and in the course of a year lost most of his nervous symptoms; but a few months after his return home he was attacked with rapidly destructive ulceration of the soft palate, laryngitis, etc. The appearance of the throat when he came to Dr. Van Buren was most characteristic of tertiary syphilis; he was at once ordered iodide of potassium, and this rapidly effected a cure.

1. These cases exemplify the not unfrequent exceptions to the rule, that a mild beginning in syphilis portends a mild course for the whole disease.

2. Certain authors have boldly proclaimed that mercury given early in syphilis is often (some say always) the cause of the appearance of the tertiary lesions, or at least of these being severe. Neither of these patients took any mercury, yet both suffered from severe sequelæ after years of quiescence.

3. Others have stated that iodide of potassium is only efficient after a previous use of mercury. The second case refutes this completely—the remedy acted like a charm.

4. This case also goes some way to confirm the opinion of those who state that a man, no matter in what period of syphilis he may be, may, if he do not poison his wife, have a healthy child.

J. W. LANGMORE, M.D.

RECENT PAPERS.

- The Modern Treatment of Syphilis. By James R. Lane. (*British Medical Journal*, December 12.)
- The Baleno-posthitis and Phimosis Symptomatic of Contagious Chancre. By M. Mauriac. (*Gazette des Hôpitaux*, December 29.)
- Treatment of Syphilis by Moist Mercurial Fumigation. By J. St. S. Wilders. (*British Medical Journal*, January 23.)
- On Infertility of Syphilitic Origin in the Male. By M. Laroyenne. (*Lyon Médical*, January 24.)
- On Febrile Symptoms in Syphilis. By Dr. V. Bremer. (*Nordiskt Mediciniskt Arkiv*, vol. vii. part 4, 1874.)
- Syphilis in its Relation to the National Health. By Dr. Gross. (*Richmond and Louisville Medical Journal*, January, 1875.)
- The Etiology of Congenital Syphilis. By Dr. Atkinson. (*New York Medical Journal*, January, 1875.)
- Scleritis Syphilitica. By Dr. Sturgis. (*Ibid.*)
- On the Treatment of Secondary Syphilis. By J. L. Milton. (*Edinburgh Medical Journal*, March, 1875.)
- The Question of the Relation between Rachitis and Syphilis. By Dr. R. W. Taylor. (*American Practitioner*, February, 1875.)
- On the Antecedents and Treatment of Tertiary Syphilis. By Dr. Drysdale. (*Medical Press and Circular*, March 3.)

MATERIA MEDICA AND THERAPEUTICS.

SOLGER AND OTHERS ON THE REMEDIAL VALUE OF NITRITE OF AMYL.—A discussion on this subject took place at a meeting of the Berlin Medico-psychological Society on December 7 (*Berliner Klinische Wochenschrift*, February 15, 1875). It was opened by Dr. Solger, who gave a brief account of the experimental results arrived at by Filehne. The latter attributes the blushing caused by inhalation of two to five minims of the nitrite to paralysis of a centre, situated in the brain, which presides over the innervation of a particular vascular region. The vagus-centre is temporarily paralysed at the same time; hence the quickening of the pulse. Solger observed that, in his own case, prolonged exposure to an atmosphere charged with the vapour of the drug caused first drowsiness, and then wakefulness; the latter being attended by warmth of the extremities. He suggests that other vaso-motor centres, such as those shown by Goltz to exist in the spinal cord, may also be paralysed by the nitrite, its action on the vaso-motor centre in the brain being only the first and most sudden of the series. Brilliant results were obtained from the drug in certain forms of epilepsy and loss of consciousness. Its action in vertigo proved capricious; it failed to relieve this symptom in two cases in which it was connected with malarial poisoning, and yielded to the administration of quinine. The vapour was given to an infant under twelve months old, suffering from one-sided clonic convulsions; the usual physiological effects ensued, but the convulsions were in no way modified. Subsequent inhalation of chloroform checked them for a considerable time. An adult, suffering from epileptic fits ushered in by an aura in the right leg, was directed to inhale nitrite of amyl as soon as the aura made itself felt; this

was invariably found to prevent the subsequent loss of consciousness and convulsion. For convenience of administration, Solger recommends the use of large capillary tubes, containing three to five minims each; these are charged with the nitrite and sealed at both ends; when required for use, one tube is folded in a bit of rag and broken up with the fingers, thus furnishing a sufficient dose of the vapour.

Jastrowitz stated that he had found the drug useful in asthma, but quite useless in patients suffering from melancholia. He doubted whether the hyperæmia of the cerebral vessels occasioned by the nitrite extended to the entire brain; the absence of any visible change in the blood-vessels of the optic disk, either during or after inhalation, leading him to believe that the dilatation of the arteries is confined to particular regions of the brain.

Sander corroborated the statements of Jastrowitz as to the occasional benefit derived from vapour of nitrite of amyl in asthma. He found it useless in the psychoses, and in epileptic fits not preceded by an aura. In two cases, the cessation of inhalation was followed by alarming symptoms of collapse. This may perhaps be explained by an observation of Schüller's, who found that the dilatation of the arteries of the pia mater under the influence of nitrite of amyl was followed by a marked narrowing of their calibre.

E. BUCHANAN BAXTER, M.D.

CHOUPEE ON THE MODE OF ACTION OF THE MOST COMMONLY USED EMETICS.—In the *Archives de Physiologie*, Dr. Choupee relates the results of the administration of emetine, tartrate of antimony, and apomorphine. The animals experimented upon were dogs. The drugs were administered by the mouth, or injected either into the veins or the subcutaneous tissue. The results obtained from these experiments are shortly as follows.

The mode of action of the most commonly employed emetics is not the same in every case.

1. The more the phenomena which precede or accompany vomiting are examined, the greater will be the differences discovered.

Ipecacuanha, and its alkaloid emetina, however they may be introduced into the system, produce vomiting, by direct irritation of the terminal branches of the pneumogastric nerves, in the mucous membrane of the stomach.

Apomorphine and tartrate of antimony have a double action; on the mucous membrane of the stomach, and on the medulla oblongata.

2. The difference between them consists in the fact that, with the antimony, the effect is procured more rapidly by introducing it into the stomach than by subcutaneous injection. With apomorphia, the latter mode of procedure gives the best result. These facts prove that antimony has a more direct action on the terminal ends of the nerves, and that apomorphia more directly affects their central origin.

W. KESTIVEN, JUN.

OBSTETRICS AND GYNÆCOLOGY.

NETTER ON THE POSSIBILITY OF CURING ACUTE PERITONITIS BY INJECTING A SUFFICIENT QUANTITY OF TEPID WATER INTO THE PERITONEAL CAVITY.—Dr. Netter (*Revue Médicale de l'Est*, January 15, 1875) quotes some remarks made

by Kœberlé in 1867, on a case of his in which acute peritonitis threatening death occurred after ovariotomy, but was checked, and the patient saved by incision into the right flank, where he detected dullness, and the escape of a quantity of red serum from the peritoneal cavity. He gives extracts from the speeches of Kœberlé, himself, and others, at a long debate which followed the reading of this case at the Strasbourg Medical Society. The cause of the speedy relief when the fluid is detected and let out at once in these cases was the chief ground of debate.

Kœberlé, while insisting on speedy action, attributed the danger to the fluid becoming rapidly septic from its contiguity to the intestines.

Netter objected to this—1. Because of the rareness of true idiopathic peritonitis (*i.e.*, excluding cases of perforation, etc.); 2. Because of the rareness of this typhoid or septic form itself. He considered the first product of the inflammatory action as the most actively dangerous, and compared it to the acrid mucus which is discharged from the nostrils at the onset of coryza. He also pointed to the numerous successful ovariotomies of Kœberlé and others, successful in spite of handling of the parts, introduction of instruments, exposure to the air, etc., of the peritoneal cavity and its contents. These successes he attributed to the thorough cleansing of the peritoneum at the time of operation, and the speedy evacuation of any fluid which gathered afterwards.

The possibility of applying this principle to other forms of peritonitis was suggested by some of the speakers, and reflection on the subject led to the present proposal by M. Netter.

He considers it would not only be justifiable, but right, in cases of acute peritonitis, to make a small opening into the peritoneal cavity, and inject sufficient tepid water to thoroughly dilute its contents and form an artificial ascites. If relief follow, the injection should be repeated. He supports his proposal by the facts observed in the similar diseases of the pleuræ. When the pleura is dry the fever runs high, but when effusion comes the symptoms abate; and when effusion occurs at the onset often there are hardly any symptoms. Even when some fluid is effused into the peritoneum it gravitates, and the intestinal and upper surfaces become glued with the lymph. He affirms—1. That the liquid secreted in acute peritonitis has only noxious properties in proportion to its concentration; 2. That, largely diluted with water, it loses these noxious properties.

He gives in full an old paper by Dr. Herlin in 1767, on some experiments which he and others made on cats and dogs, ligaturing the bile-duct and puncturing the gall-bladder, and letting the bile into the peritoneum, afterwards practising warm-water injections. The animals appeared none the worse for the operation, though dogs, as Netter points out, are specially liable to peritonitis. He arrives at the following conclusions.

1. It is possible to cut short acute peritonitis by injections at its commencement.

2. If Herlin's experiments be repeated without the injections and the animals die, it will be because the injections were not used.

3. Since it has become a recognised practice to use injections when peritonitis comes on after ovariotomy, etc., so it should be in the other forms of peritonitis where there is no surgical opening to begin with. He considers the adhesions formed by the intestines in puerperal and other cases a cause of the extreme gaseous distension, and consequent

dyspnœa and collapse; if the injections alone will not separate these adhesions, aid may be given by simple punctures, to let out the gas. He quotes from Kœberlé that these adhesions lead to little pouches full of serum or pus. In a note at the end of the paper he advocates leaving the wound open after herniotomy, and injecting if necessary.

[The reporter has several times noticed the pouches referred to in *post mortem* examinations, and that they are surrounded by extra inflammatory action; mere puncture and draining of course gives no exit for such collections of serum or pus.—*Rep.*]

J. KNOWSLEY THORNTON.

DERMATOLOGY.

FAYRER AND DA SILVA LIMA ON GOA POWDER AS A CURE FOR RINGWORM.—The *Medical Times and Gazette*, for October 24, contained a communication from Dr. Fayrer, calling attention to a remedy which has a high reputation throughout India for the cure of certain skin-diseases which are common in that country, and especially of a somewhat obstinate affection called 'Indian Ringworm.' This remedy, which Dr. Fayrer himself has 'found to be most certainly and rapidly effective,' goes by the names of Goa Powder, Chrysatobine, or Poh di Bahia. Dr. Fayrer commends the powder, which he thinks has not yet become very generally known in the profession, to the notice of dermatologists, and suggests a more extended use of it in this country. He adds, 'I regret that I am unable to state what Goa powder consists of, but I believe it to be a production of the vegetable kingdom.' He applied for information on this point to Mr. Hanbury, but without success; 'the composition as well as the place of manufacture of Goa powder seem alike secrets.' It is a fine yellowish powder, without smell or taste; the mode of application is to dissolve a few grains in vinegar or lime-juice to about the consistence of cream, and to paint this over the eruption and for a little distance beyond its margin on to the sound skin; this may be repeated after a day or two. Two or three applications rarely fail to effect a cure.

In a subsequent number of the same journal, p. 547, Mr. Gaskoin, of the British Hospital for Diseases of the Skin, says that he has experimented with this powder, and has not been altogether satisfied with the result. He states, that it causes considerable irritation of the skin; he has, however, been in the habit of rubbing in the powder instead of merely painting it over the surface.

In the *Medical Times and Gazette* of March 6, Dr. J. L. Paterson, of Edinburgh, publishes an interesting letter from Dr. Da Silva Lima of Bahia, in which the mystery as to the composition of Goa powder seems to be satisfactorily explained. He says that the powdered medulla of a tree, called in Brazil araroba, is there a popular remedy for herpes circinatus and other similar affections. The tree which furnishes this powder grows only in the interior of the empire, and has not yet been botanically identified; it belongs, however, to the natural order Leguminosæ. The powder is known throughout South America as po' di Bahia (Bahia powder), and is also exported in considerable quantities to Lisbon, whence it is probably reshipped to the Portuguese settlement Goa, and thence distributed over India under a new name. The physical properties and therapeutic effects of araroba powder and of

Goa powder seem to be identical, except that the latter is less energetic, owing no doubt to adulteration. Dr. Da Silva Lima recommends the following formula: Araroba powder gr. xx, acetic acid ℥x, benzoated lard an ounce. He has found it very efficacious in the parasitic skin-diseases mentioned by Dr. Fayrer and also in mentagra.

O'NEILL ON THE PRESENCE OF A FILARIA IN 'CRAW-CRAW.'—Dr. John O'Neill, Surgeon R.N. (*Lancet*, February 20), describes 'craw-craw' as a contagious skin-disease, endemic among the negroes on the west coast of Africa, which in most of its symptoms closely resembles scabies. He appears to have demonstrated the fact that the irritation is due to the burrowing in the true skin of a minute filaria, one-hundredth of an inch in length, of which he gives drawings. He says that the disease resists the native remedies, and he does not state that his European brethren have been as yet more successful. Sulphur, at all events, 'is of doubtful efficacy.'

J. W. LANGMORE, M.D.

RECENT PAPERS.

- On the Employment of Impermeable Fabrics, especially India-rubber Cloth, in the Treatment of Affections of the Skin. By Dr. Besnier. (*Bulletin Général de Thérapeutique*, January 30.)
- Affections of the Sebaceous Glands. By Dr. Wigglesworth. (*Boston Medical and Surgical Journal*, January 28.)
- Case of Fibroma Molluscum. By Dr. Middleton Michel. (*American Journal of Medical Sciences*, January, 1875.)
- On Scabies. By L. A. Dühring. (*Philadelphia Medical Times*, December 26.)
- On the Inoculation of some Lesions of the Skin. By Dr. Donard. (*Le Bourdeaux Médical*, February 21.)
- Lupus studied from the Anatomico-pathological Point of View. By Dr. Georges Homolle. (*Archives Générales de Médecine*, March, 1875.)
- On Herpes Contagiosus Varioliformis. By Dr. Frank Foster, (*American Archives of Dermatology*, January.) An account of an anomalous epidemic which occurred at a New Jersey watering-place. It was at first thought to be varicella, but was probably not infectious, and rather allied to contagious impetigo. Dr. Foster, however, thinks it ought to have a name to itself, and proposes the above.
- Lichen Ruber (Hebra). By Dr. Moriz Kaposi. (*American Archives of Dermatology*, January.)

REVIEWS.

Diseases of the Kidney and Urinary Derangements.
By W. HOWSHIP DICKINSON, M.D., F.R.C.P.,
Physician to and Lecturer on Pathology at St. George's Hospital. In Three Parts. Part I. Diabetes. London: Longmans, 1875.

This work forms a careful and complete treatise on diabetes, based upon the view that it is due to a derangement of the nervous system. The volume commences with a concise account of glycogenesis and glycosuria, in which the author adheres to the opinions of Bernard, whose latest views were fully expounded in the lectures published in the first volume of the LONDON MEDICAL RECORD. The only point in which Dr. Dickinson is disinclined to accept Bernard's views is that as to the theory of glycosuria; for, although he follows that physiologist in the idea that increased circulation through the liver, due to vaso-motor derangement, is the fundamental factor in the affection, yet he holds that there is rather a substitution of sugar for glycogen than that the glycogen is really increased in amount. In the chapter devoted to the pathology of diabetes, Dr. Dickinson

dwells at length upon the changes which he discovered in the nervous centres, changes which may be briefly summed up as consisting in dilatations of and hæmorrhage from small arteries, chiefly in the white matter of both the brain and the spinal cord, leading to distension of the perivascular canals and consequent excavations in the nervous tissue, excavations frequently large enough to be viewed by the naked eye, and containing generally shreds of imperfectly formed connective tissue mingled with hæmatin crystals and the remains of blood-vessels. This part of the work is profusely illustrated with well-executed engravings, together with the two plates which accompanied the author's paper on the subject published in the *Medico-Chirurgical Transactions*. He also adds one case in which, in addition to these excavating changes, there was widespread 'miliary sclerosis' of the white matter of the brain and both white and grey matter of the spinal cord. The perivascular changes point, he thinks, strongly in favour of the view (which is in harmony with Bernard's results in artificial glycosuria) that diabetes is due to nervous irritation rather than interruption or loss of nervous power; the nerve-tissue being perfectly natural up to the margins of the excavations. In the liver, more or less hyperæmia was the prevailing condition among twenty-seven cases examined, in two cases associated with widespread thrombosis of the portal veins, and in one with remarkable areas of capillary dilatation. With regard to the disease of the lungs, frequently present in diabetes, he regards it, like Drs. Wilks and Pavy, as not being tubercular, but rather as a chronic excavating pneumonia. In the kidney he has met mostly with various degrees of congestion, often associated with overgrowth and fatty degeneration of the renal epithelium. The section on pathology terminates with analyses of the blood by Simon, and a few remarks on the prevalence of glycosuria among the insane. The subjects, distribution and causes of diabetes, form the third chapter, hereditary influence and mental emotion being stated to hold the first place in its etiology; while numerous instances are given of traumatic and obvious morbid lesions in the brain as producing the disease. The sketch of the clinical course of the disease is very graphically rendered, special mention being made of the temperature of the body, and of diabetic cataract, the non-advisability of operation in the latter affection being strongly urged. A chapter is devoted to the full consideration of the characters of the urine; and the concomitant variation in the amounts of urea and sugar excreted is well shown. Under treatment, restricted diet, opium, iron, strychnia, cod-liver oil, and, if necessary, aperients, are alone thought to be of value; and the author expresses himself as a strong opponent of the skimmed milk treatment. The subject of diabetes mellitus is concluded by the details of four cases, in which full analysis of the urine was made, showing the effect upon the urine and the natural course of the disease of various methods of treatment employed. The subject of diabetes insipidus is then treated, and its origin in disorder of the nervous system upheld; this disease is also illustrated by the notes of four cases, three occurring in childhood and one in a man sixty years of age, in which it apparently resulted from the compression of the abdominal sympathetic by post-peritoneal cancer. A comparison of the two forms of diabetes, as regards the influence of diet upon the disease, terminates the volume, from which it would

appear that in diabetes insipidus a vegetable diet caused no increase in the quantity of urine, but a decrease in the discharge of urea; in diabetes mellitus it produced increase in the quantity of sugar and urine, and a temporary excess in urea; while under a meat diet the subjects of the former disease did not improve like those suffering from the mellitic form.

The work, of which the above is a mere summary, is one of great value and interest. It forms a clear and full exposition of the disease of which it treats, and is written in a style at once scholarly and engaging. Although it would, perhaps, be premature to affirm that the nervous origin of diabetes mellitus is here finally settled, yet this work will rank as the first in which the pathology of the disease has been shown to be in accordance with physiological doctrine; and, if confirmed by subsequent observers, the researches of Dr. Dickinson on the changes in the nervous system in diabetes will always be regarded as marking a great advance in pathology.

The second part of the work on 'Diseases of the Kidney and Urinary Derangements,' of which this volume forms the first, is to comprise a second edition of the author's well-known treatise on albuminuria; while the third part will deal with the organic renal changes which do not come under the heading of albuminuria; abscess, embolism and thrombosis, growths and cysts, renal calculi, suppression of urine, hæmaturia, and chyluria.

S. COUPLAND, M.D.

NEW INVENTIONS.

SALICYLIC ACID WOUND-DRESSING COTTON WOOL.

Messrs. Krohne and Sesemann have not been slow to bring into practical use the antiseptic properties of salicylic acid, to which much reference has lately been made. Our readers are already acquainted with the favourable reports which have been made of the antiseptic and unirritating properties of salicylic acid. Messrs. Krohne and Sesemann say that salicylic acid wound-dressing cotton is used in the same manner as Brun's wound-dressing cotton. To prevent it adhering to the wound, a piece of muslin previously dipped in a solution of salicylic acid (one part acid to 300 parts hot or 1,000 cold water), is first placed over the wound, on which the cotton is placed and then fastened with a bandage. This dressing may remain untouched for days or even weeks; in the latter case it is only necessary to saturate it now and then with a watery solution (1.300) of salicylic acid. For this reason it is cheaper and preferable to any other dressing. Balls of this cotton wool covered with muslin are used instead of sponges.

We hear that it has already been tried and favourably reported upon by many hospital surgeons and obstetricians.

CIGARS DE JOY.

These 'cigars' have long been in use abroad, and are well known in this country. They form very convenient and useful means of treating a disease which is often highly intractable. Asthma, hay fever, and all spasmodic affections of the respiratory organs which baffle many well-considered means of treatment, will generally yield entirely and are always relieved by the inhalation of medicated fumes. The 'Cigars de Joy' are rolls of prepared

paper impregnated with stramonium and other medicinal herbs.

The method of using is simple enough. They need only to be lighted and to be smoked as the Greeks are in the habit of smoking cigarettes of light Turkish tobacco, namely, by taking a deep sighing inspiration as each puff of smoke is drawn into the mouth. This sucks the medicated fumes into the air-tubes, and impregnates the air which passes into the lungs with the volatilised chemicals with which the cigarette-paper is impregnated. The local application of the medication has a very rapid effect in soothing bronchial irritation and relieving the spasm of air-tubes. One cigar at a time usually suffices. Many varieties of papers and cigars have been introduced since first the 'cigars de Joy' were brought into notice; but none of the more recent introductions have proved more generally useful than these; and thus, although they may have been partly lost sight of in the little crowd of new aspirants for favour, they are not less deserving of notice than ever, for they have lost none of their therapeutic merits.

REMIN'S ESSENCE OF THE BEST.

Under this name has been introduced a pleasant alcoholic stimulant, to which some nutritive elements have been added. We have Dr. Hassall's authority for saying that it is well-adapted for its purpose, and made of sound and wholesome materials. The sphere of usefulness of such compounds must be within the physician's discretion. On the one hand it is sometimes useful to be able to prescribe a stimulant which comes to the patient as something else in form than ordinary 'wine and beef-tea'; on the other hand, it is not desirable that under harmless names alcoholic stimulants should obtain currency as popular drinks. This compound, therefore, may be useful as part of the physician's list of remedies, but it would not be desirable that it should be regarded as anything else than a variety of flavoured alcohol, which is to be administered and employed under the proper safeguards against abuse as a means of tipping.

ARNOLD'S NEW CLINICAL THERMOMETER.

This little pocket clinical thermometer has many advantages. It is portable, firmly mounted, with a well-devised 'bayonet catch,' and graduated with a very legible and indelible reading-scale. They are well tested and accurate instruments, and combine almost all the requirements which can be looked for in an instrument of the kind.

MISCELLANY.

DOCTOR'S CARRIAGES. — A venerable physician of Philadelphia, still living, Dr. Condie, the author of a book on *Diseases of Children*, would never keep a carriage, notwithstanding his large practice, and is made responsible for this *mot*, 'If a doctor drive one horse, it indicates physical weakness; if he drive two, mental weakness.'

MEMORIAL TO SIR RANALD MARTIN. — A meeting to consider the subject of a memorial to Sir Ranald Martin will be held at Willis's Rooms on Thursday, the 25th inst., at 4 P.M., when Sir Galbraith Logan has consented to preside. It is contemplated that the proposed memorial shall be in the form of some kind of prize or medal in connection with the Army Medical School at Netley.

INSANITY IN AMERICA.—The Report of the Commissioners of Lunacy to the Commonwealth of Massachusetts estimates the number of the insane in that state at over four thousand, of which two thousand two hundred and fifty-six are in hospitals, four hundred and thirty-eight in almshouses, and the rest in private families. According to the National and State censuses in America, there is an increase of insanity in a ratio beyond the increase of population, and it is most marked in the foreign element.

STUDIES ON WOMEN.—Dr. Edward Reich, of Jena, has published a work under this title, containing a mass of information on the sex, especially on their vital statistics. It shows that the female sex is not only less liable to violent deaths and accidents but also to severe disease. In a million of inhabitants in Prussia, 58,817 men died of old age and its attendant weakness, while 95,116 women survived to be thus registered. So far as the liability to 'sudden death' is concerned, the figures stand 68.51 men to 52.60 women. The author makes the suggestive deduction from his studies, that wherever statistics show a mortality among females much exceeding that among males, we may have 'the greatest certainty that that locality demands the most earnest attention of the philanthropist. Vice and crime are rife there, and when a pestilence breaks out there, its devastations will be terrible.'

THE POPULATION OF CHINA.—The Abbé David, who has spent many years in exploring the Chinese territories, and in studying the manners and customs of the inhabitants, states that the number of 100,000,000 of inhabitants given by the majority of statisticians as the sum total of the population of the Chinese empire is entirely inaccurate. He attributes the error to the terrible ravages in certain political subdivisions which had many times been in a state of revolt, and in which organised massacres had reduced the population to one-half, nay, sometimes, to one-fifth, the original population. In the province of Kiangsi, which is the most sparsely populated, the population is 4,000 inhabitants per canton, and there are not fewer than 4,345 cantons; which makes up a total of 17,380,000 inhabitants. The majority of the eighteen provinces composing the middle Empire are undoubtedly more thickly populated than the province of Kiangsi; taking, however, 17,380,000 as the average, the total amount of the population would not be less than 300 millions.

THE OXFORD AND CAMBRIDGE BOAT-RACE.—Much has been written on the alleged injury to health from the over-exertion induced by the Oxford and Cambridge boat-race. Dr. H. L. Bartlett, in a paper on 'Physical Culture,' published in the *New York Sanitarian*, thus summarises all the data which have been collected on the subject. Some years since public attention was called to the subject of athletic sports in connection with college and university life, and the statement was made by popular journals that the exercise requisite to make a student proficient as a champion in rowing or ball-playing, was dangerous to life, and detrimental to health. To settle this question, Dr. J. E. Morgan took the trouble to learn the personal history of all the crews engaged in the Oxford and Cambridge boat-races from 1829 to 1869, a period of forty years, and comprising thirty-two crews, including 294 oarsmen. Of these, thirty-nine had died, in the mean time, of the following diseases: of fever, eleven; consumption, nine; accidental causes, six; heart affections, three; diseases of the brain, two; inflammatory attacks, two; general paralysis, one; calculus, one; erysipelas, one; Bright's disease of the kidneys, one; cancer, one; lupus, one. On this Dr. Bartlett remarks that surely these are not causes of death induced by over-exertion. According to the report of the Registrar-General of Great Britain, the mortality in civil life from diseases of the heart and lungs is forty-six per cent., and among soldiers and sailors, still larger, while among the Oxford and Cambridge oarsmen the mortality was only thirty per cent. from the same causes. According to Dr. Farr's life tables, the average duration of life after the age of twenty is forty years.

In other words, the person who has reached the age of twenty will probably live till the age of sixty. Dr. Morgan found the average of the Oxford crew of 1829 to be forty-six years, and the Cambridge crew of the same year to be 48.6, or an excess of from six to eight years beyond the average of human life, and concludes that the University oarsmen, though their labour be excessive at times, are more robust, better scholars, and live longer than the other students. The Rev. H. A. Morgan, brother of Dr. Morgan, says, 'I have myself rowed in over a hundred eight-oared races, on the Cam, and have mingled much with rowing men, but have never seen injurious effects from the rowing.' The popular idea, therefore, that it is injurious to the students of our colleges and universities to join in athletic sports, even of a severe character, is not borne out by facts. On the contrary, experience proves that they who are the most successful ball-players and oarsmen are, as a rule, the best students. It is reasonable to suppose that this should be so, since study is a great tax upon the physical strength and endurance of a man, and he who has the most stamina, other things being equal, will win. In connection with this subject the Rev. Dr. Haughton in his *Animal Mechanics*, writes: 'A good idea may be formed of the rate in which the muscles give out work in a boat-race, by comparing this work with the average daily work of a labourer. In many kinds of labour there are four hundred foot-tons of work accomplished in ten hours. The oarsman performs in one minute the one hundredth part of his day's labour, and if he could continue to work at the same rate, he would finish his day's task in one hour and forty minutes, instead of the customary ten hours. The work done, therefore, in rowing one knot in seven minutes is, while it lasts, performed at a rate equal to six times that of the hard-worked labourer.' It would, therefore, appear that although no specially injurious effects have been traced to the strain of the boat-race, this immunity must rather be attributed to the short time during which the exertion is kept up than to any other reason.

THE MOST ECONOMICAL MODE OF LIGHTING PREMISES, where natural daylight is obstructed, owing to the small size of windows or the proximity of buildings, is by adapting one of those useful Daylight Reflectors. Mr. Chappuis, the patentee, of 69 Fleet Street, manufactures them of various qualities, in order to suit the purse of rich and poor. They are in general use all over London, and in almost every town of the United Kingdom; with the aid of this invention, gas being done away with in day-time, the twofold purpose of health and economy can be served thereby.—[Adv't.]

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The London Medical Record.

WEDNESDAY, MARCH 24, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

MEYER ON DEFORMITIES DUE TO ARRESTED DEVELOPMENT IN IDIOTS.

The following is an abstract of an article by Professor Meyer, of Göttingen, in the *Archiv für Psychiatrie*, vol. v. no. 1. Of the bodily peculiarities seen among idiots, only those, according to our present scientific basis, must be regarded as typical which, in the microcephalic, are known as deformities of the head. Of their dependence on the fundamental lesion, the cramped development of the brain, no one has ever doubted. One has only to compare any of the often called idiot-skulls with that of a chimpanzee or other anthropoid ape, to see at once that the prognathousness of both depends on quite different conditions. In the ape there is a truly colossal development of the teeth and a resulting overgrowth of the upper jaw, especially in its alveolar portion; while the face-skeleton of the microcephalic is not only not excessively developed, but, judging from a limited number of observations, absolutely below the normal size to a very considerable degree. The growth of the face-bones is really dependent on the development of the base of the skull. Should this, as in all the true microcephalic, remain below the normal, it at once sets up an impediment to the normal development of the face. This face, which was before in itself too small, now projects, because the skull part has proportionately retrograded, and in the frontal region has much receded. The prognathousness of apes (also of negroes) is, then, an absolute and positive one, whilst that of the microcephalic is only relative and negative.

As to the general corporeal formation of low idiots, æsthetic modes of viewing them seem to have prevailed. Authors have busied themselves about the strange, repulsive, horrible aspect. Still it must be apparent that a diminution of the brain which so impairs the development of the intellect, influences also the growth of the body in a definite degree. Impairment of innervation as a rule entails that of nutrition, and it is well known how pathological precedents in the central apparatus influence the ultimate growth of limbs, at times, indeed, that of half the body. Rösch has already called attention to the stagnant and ill-developed aspect of the whole body in cretinous and idiotic children, as one of the most striking and constant appearances. It does not appear that, beyond the general weakness of development and impairment of nutrition, any reference has hitherto been made to the disproportion of the extremities to the body.

The investigations which follow comprise the first efforts to fill up this gap, and to show the influence of arrested brain-development on that of the body.

A harmless idiot, C. Fuge, aged twenty-eight, was admitted to the Göttingen Asylum. A supporter of

the 'Descent-theory' might in him have recognised retrogressive anthropoid traces, just as the well-known idiot Sophie Wiss showed her atavistic disposition by climbing and riding on dogs. Thus for years he had a strong affection for horses and donkeys, which he would embrace and mix with on every occasion. If a waggon passed by the street door, he would rush out of the house and stand by the horse. His pet place of resort was at a neighbouring cabman's, where he always occupied himself in the stables. This propensity for running after horses was the occasion of his being brought before the police, and transferred to the asylum. Apart from a few syllables, which, as in young children, were more breathed out than spoken, his language in no degree resembled human speech. It is doubtful whether in this case the want of speech denoted intellectual impotence, and should be regarded as typical of the lowest state of intellectual development, proceeding either from want of ideas or from want of the necessary movements of speech-mechanism. The former would have nothing to say, the latter no necessity to speak. The difficulty in this case of performing the more minute movements of articulation much resembled the defective bodily formation. Even eating was badly performed, for the food was put into the cavity of the mouth, far behind the teeth, and, after the most limited chewing, swallowed, the teeth showing all the time. He soon learnt to understand the wishes of the attendants and the rules of the asylum, and would give information of any small irregularities. At first unclean, he soon learnt better. He could express astonishment, surprise, and other emotional conditions by lifting his arms, opening his mouth, etc. He was never seen to laugh or weep, but when depressed or frightened he squatted on the floor, hanging his head down with drooping eyelids. Only when very much annoyed, as when his food was taken away, did he utter a few cries. His intellectual endowments were no more than those of a child two years old.

Truly striking was the impression of the figure in the upright position, when approaching anyone, reminding one exactly of Raff's picture of the ape of the Zoological Gardens. Leaning forwards, he rested on the outer border of the feet, the knees decidedly bent, and with a rolling gait. The head was deeply drawn down between the shoulders, and raised up when looking forwards. Grasping, holding, and other movements of the hand were always accompanied with protrusion of the upper arm. The whole of the hand was used—for instance, the handle of a spoon was placed in the palm, and food thrust into the mouth with the clenched fist. Resembling the ape again was the extraordinary mobility of the features under excitement. Forehead and cheeks were at once covered with numerous wrinkles, making the face look that of a much older man, although the general expression before was younger and more childlike. The first traces of a beard showed themselves in his twenty-fourth year, confined to a few bristles on the chin and lower jaw; nothing on the upper lip. On the generative organs were only a few thin fine hairs. The testicles were small; and he had no appearance of sexual desires, nor any inclination towards the opposite sex. When undressed the body was seen to be deformed, as were the extremities. The body was curved backwards, from above downwards, and sidewise. The front surface curved backwards in the same sense. The spinal column, wanting the normal S-curve,

formed a simple bow, and only on attempting to raise the back part of the skull and look upwards was it entirely straightened. The shoulder-blades hung down far from the spinal column, as much on the side as on the back parts of the body. As a consequence, the shoulder-joint stood diagonally forwards, and the arms forwards instead of being sideways. The clavicles were short, and bent backwards slightly at the ends. The muscular system of the extremities was feebly developed, though the general nutrition was good. The feet were short and cloddy; the toes very short, especially the large ones, which scarcely jutted beyond the others. The end of the foot was directed inwards and slightly upwards. The prominence of the calves was more on the outer than the inner side. The posterior external muscles of the right leg on the under side were always contracted, making the foot appear clubbed and the leg too short. The fore-arm was too long, notwithstanding the smallness of the hand. This latter peculiarity was very striking from its deviation from the usual form of the hand. It was very small; much longer in the carpo-metacarpal part and shorter in the fingers than another hand of like size. The thumb, when the hand was completely outstretched, scarcely reached with its extremity the carpo-metacarpal phalanx, and the terminal digital phalanges looked diminutive, scarcely affording room for the nails, and badly adapted for firm seizure. The palm of the hand was flat, limp, and the skin corrugated. The ball of the thumb and little finger ill developed. Then follow two tables of measurements of the hand, compared with those of an equal-sized hand of normal dimensions. At the first look of Fuge's head, the face appears too small and too long, but the skull neither in size nor in form seems abnormal. Closer investigation, however, yielded many considerable deviations both in the face and skull, the latter overtopping in the frontal and still more in the parietal curve, both in front and at the side, the base of the skull and the face. The lateral vaulting seemed like an abscess, and a line drawn in the frontal direction through both parietal bones resembled a somewhat flattened Moorish bow. The face was equally directed with the vertically upright yet somewhat forwardly inclined forehead, giving in consequence an opisthognathous look, Camper's angle being very large. The upper maxilla, palate, and lower jaw were very small. The teeth, which should have stood perpendicular to the alveolar margin, were turned forwards, so that, besides the opisthognathousness, there was alveolar prognathousness. The distance between the angles of the lower jaws was ninety millimetres (three and a-half inches), whilst for a healthy adult they should be, according to Welker, four inches. Though the frontal bone and both parietals were strongly developed, both in length and in breadth, the occipital seemed almost conical, and in form, position and size, like that of a new-born child. The small fontanelle looked like a deep pit, which, in an oblique direction by a crest on the right side of the squama, was connected with the upper line of the neck. The large fontanelle had also a circular depression, which blended with the depressed and wide coronal and sagittal sutures.

The above-given limits of the skull only admit of the conclusion that in the earlier years, perhaps even in the fetal period, an abnormal and retrograde increase in the contents of the skull occurred, in consequence perhaps of a congenital hydro-

cephalus. That the size of the skull was not large is explained by the later absorption of the fluid, and by the influence of this on the development of the brain. But, however satisfactorily this congenital hydrocephalus explains the condition of the anterior and middle portion of the cranium, that of the posterior portion is a riddle. The vertical part of the squamous bone was scarcely two fingers high, and the basal portion not much larger; this leads to the conclusion that, the transverse crista being there, the flat surface did not afford enough space for the insertion of the cervical muscles. It appeared afterwards that the upper part of the squama was the seat of an encephalocele or hydrancephalocele, for soon after birth there was noticed there a round, depending tumour, like an abscess, which gradually and completely disappeared. The position and small size of the occipital bone confirm, what might have been concluded from the position of the head and the downward direction of the eyes, that the foramen magnum was placed too far backwards and less horizontally than in normal skulls. Both these elements, as comparative anatomy shows, are connected, and Daubenton has already written that, 'the farther the foramen magnum is from the occipital protuberance, the more horizontal is it; and the nearer it is, so does it become more perpendicular.' And later on both he and Cuvier thought that the upright position of men and the horizontal direction of the eyes were dependent on the position of the foramen magnum. The plane of the foramen magnum is almost at right angles to the perpendicular of the body, and when prolonged cuts the face at the level of the orbits. Cuvier also shows that the prolongations of the joints of the skull bisect a line drawn from the occipital protuberance to the incisor teeth, and so in vertical positions of the body equipose the head.

Through physiological changes, the occiput became arrested in development, and the foramen magnum and condyloid processes were retained in the position they had at birth. Consequently, at the first attempts at standing upright the body was directed forwards and the eyes downwards, a circumstance which made Fuge draw his head into the neck. The other abnormalities rest on the same pathological basis. The waddling gait of the negro and other races, where the support rests chiefly on the outer border of the foot and great toe, is a necessary result of the posterior position of the foramen magnum; just as in the fetus the spinal column is quite straight, and in the newly born is very little curved, so in negroes and other races, where the foramen magnum is more inclined and less central, the spinal column is straighter than in Europeans. The form of the spinal column and the corresponding prone position of the body, influence both extremities; at first, of course, only in position. One is tempted to refer the shortening and deficient curve of the clavicle to the position of the scapula and upper arm, *e.g.*, in prone positions of the body a considerable impression must be made on those parts which are perpendicular to the long axis, and have the tendency to press from without inwards. As gynaecologists know, the clavicle in the later periods of pregnancy has fully attained its characteristic form, and one is forced to suppose that the above-mentioned influences have been strong enough to transform the human form in the post-fœtal period to that of an ape. The relative length is greatest in men, where the double curve is most pronounced.

Considerably weakened in the short and coarse clavicle of anthropoids, the curve resolves itself in monkeys into a slight bend backwards.

Then follow some observations on the relative lengths of the upper and fore-arm, of the thigh and leg to each other. Observations and measurements on well-proportioned embryos and skeletons show that at first the lower exceed the upper extremities in length, but that later on the reverse occurs, and that in the later periods of pregnancy the difference is comparatively small. To Humphry belongs the credit of having settled the growth of the extremities by measurements at various ages. At the first stage of their development, the upper arm and thigh are proportionately shorter than the fore-arm and leg; gradually the proportion changes, and not till the period of puberty does this change of relation cease. In the *Révue Anthropologique*, 1872, Haüy has shown that the proportion of the fore-arm to the upper-arm in the negro is the same as in the fœtus of white races at five to seven months. Langer has shown that the shape of the hand at birth is completed; from that time it develops evenly; whilst, starting at the sixth week, the fingers are developed by shallow but gradually deepening notches, and the carpus and metacarpus exceed the growth in the earlier months. The proportion changes, however, quickly; in well-developed specimens of the fourth and fifth month the middle and index fingers had already reached the length of the carpus and metacarpus. Fuge's hand shows the embryonic preponderance of carpus and metacarpus, but here the comparison ends, for to his short and weak thumb there is no similitude in the fœtus. In the human hand, more characteristic than the shortness of the hand itself and the length of the fingers is the length of the thumb, whilst, though the gorilla has a larger hand absolutely, it has not only relatively but absolutely a smaller thumb than man. In its whole and separate parts it is not only smaller but also weaker and thinner; and whilst in men the thumb is placed in apposition with the index-finger and reaches almost to the end of the first phalanx, in the gorilla it only reaches the head of the metacarpal bone. As already hinted, the defective, or, rather, most elementary speech depended more on incompleteness of the special speech-mechanism than on want of psychic power. Just so the strong emotional expressions had no outlet of expression. The psychic predispositions to laugh and weep are in idiots more highly developed than those to speak; but the occasions for laughing and weeping must be more rare in them than in most men; it remains then that this failure of emotional expression rests solely on the want of machinery. On the other hand, it would appear that the laughing and weeping mechanism is wanting in the new-born. If, however, in the course of the first three or four months of life it attains perfection, or even works with great power, there is enough to show that the theory of an 'acquired' movement must be excluded. The incapability of expressing one's feelings by laughing and weeping depends on very different causes. The failure may be in the necessary combination of sensory and motor nerve-paths, or in the connection between these with the place of origin of psychic excitation in the central organs. In Fuge's case, as in that of the newly born and monkeys, it may be in the necessary co-ordination of the sensory and motor ultimate apparatus required for laughing and weeping. Should the latter view be admitted, there would be a close analogy between the deformities of

body and extremities and the impediments to the execution of psychic excitations. Bischoff's investigations on the face-muscles of apes, which, just as idiots and new-born children, are incapable of physiognomic expressions, confirm this view. In the young chimpanzee and orang, as well as in hylobates, the face-muscles, including the orbicularis palpebrarum, orbicularis oris, and buccinator appear only as pure skin-muscles, to which from their position, one could give the same names as in men, but which are so little separated from each other that such scarcely seems justified. This is also the case with other apes, and I think that one may well stand by the old assertion that man may be separated from all beasts, and even from the highest apes by the strong development and isolation of his facial muscles.'

[The ape-like varieties of men are not unfrequent in asylums, but hitherto they have not received the scientific investigation which they undoubtedly deserve. It is in the hope of directing attention to the more exact study of these persons, in the way indicated by Dr. L. Meyer in the journal above quoted, that the present article is written.—*Rep.*]

T. C. SHAW, M.D.

THE ELECTRICAL ACTION OF SOOL-BATHS.

BY DR. SCHELLE, OF ROSENHEIM.*

The advice of the physician is constantly asked for as to the expediency of trying a bath-cure. If he have not special experience of it, he ought to be in possession of the best sources of information on the subject, at least if he is to give useful counsel. These sources are, the works on balneology and his own judgment. The knowledge of the literature of balneology is doubtless indispensable to him; but the directions which it gives, are by no means so absolute, or definite, that he may not make a mistake in following them. He must think out the subject, and form for himself the principles that ought to guide him.

I shall now treat exclusively of bathing, not of drinking cures. Our chief aids in studying the effects of baths are, undoubtedly, chemistry and organic physics. The first is nearly exhausted. There is scarcely a bath of any importance whose waters have not been carefully analysed. Organic physics is a comparatively new science, and has been only partially applied, and its application is far more difficult and complicated than that of chemistry. Admirable results are produced by bathing, but the *rationale* of this remains very much in the dark. It is mainly by studying the various forces which operate on the human constitution, that we can hope to advance our knowledge. The point in balneology which I find shrouded in the greatest obscurity, is the influence of animal electricity. It is scarcely alluded to in our handbooks; yet this invisible agent always encircles us, and manifests itself whenever we move from one medium into another, for instance, from the air into water. In fact, the distribution of electricity in the electrical organs is materially affected by the mere immersion of the body in water. This is most evident in water containing mineral ingredients; and in the strong salt-baths so much used in Germany, a great portion of their curative effects is to be attributed to electro-dynamics. Without its agency, most of the

* *Aerztliches Intelligenz-Blatt*, no. 4, 1875.

effects of salt-baths would be quite inexplicable. As my views of the operation of these baths are different from the usual ones, and are founded on ten years' experience of them, I may, perhaps, be allowed to explain them. The therapeutic effects of these baths depend (1) on the heat which they convey to the body; (2) on the electrical changes they produce. In the first respect, their action is antiphlogistic; in the second, it is stimulant.

1. The skin is soaked and distended by a warm bath, while the parts lying immediately under it are comparatively little affected. This may be plainly observed in the tactile papillæ of the fingers. The skin over them swells, while the more solid papillæ remain behind. Along with the swelling of the skin, injection of the capillaries takes place, as shown by its lively colour. This injection is produced by all warm water, whether it be simple or mineral. The injection of the capillaries is so strong that occasionally it leads to the production of a rash, the bath-rash. The absorption of mineral ingredients from the water of the baths into the system is denied by all the chief authorities. The skin is indeed formed for excretion, not for absorption. No doubt it possesses the attribute of porosity; but the thin layer of the epidermis, smeared with the secretion of the sebaceous follicles, gives sufficient protection against the penetration of any of the contents of the bath under ordinary conditions. The *Medical Gazette* of Lyons recounts a case of arthritis nodosa, in which baths containing two kilogrammes of arseniate of soda, and half a kilogramme of corrosive sublimate respectively, were used without any disagreeable consequences. We can only conceive absorption to be possible when there is some strong external pressure, some pressure at least as strong as that of our atmosphere; and just as water, or even quicksilver, may be forced through wood, so there is no doubt that the idea of forced absorption from mineral baths is a feasible one; and indeed, it is surprising that no attempt at it has been made, seeing that atmospheric baths of the most varied pressure have been for some years in fashion. As, then, there is no absorption, we must consider the injection of the capillaries to be an effect of heat. When this is meant to be considerable, the temperature of the water should be about blood-heat.

The general operation of hot baths is plain enough. The blood is drawn away from the central organs to the peripheral surface, and the pressure on the internal organs is slightly reduced. We can thus see how the most different diseases may be benefited by hot baths, and how hot baths may act as antiphlogistics. By thus deriving to the surface, they act at least as powerfully as leeches or blood-letting.

2. All are agreed that salt baths stimulate the nervous system; but there is difference of opinion as to the way in which this is brought about. Ditterich says that it is by the action on the cutaneous nerves of the salt, or of the warmth of the bath, and by the extension of that stimulus to the central nervous and vascular system. It is a fact that the skin is stimulated; but I think that it is so only by the heat of the water. The cutaneous nerves, as far as feeling goes, recognise no difference between common water and salt water; they recognise only differences of temperature. Beneke, again, says that the general effect of a salt bath is shown chiefly in the transformation of nitrogenous compounds by reflex action, which transformation we can intensify

by the concentration of the bath. We need not quarrel as to the general effect; but Beneke offers no sufficient explanation how this reflex action is brought about. The explanation that I would advance is this; the salt bath acts as a stimulant to the whole nervous system, because it furnishes a good conducting recipient for animal electricity. The electrical organs, *i.e.*, the muscles and the nerves, receive a disproportionately stronger charge of the opposite electricities.

[Dr. Schelle then explains at length his views that the nerves, with their tubules enveloped in neurilemma, may be considered as analogous to the wires and gutta-percha of submarine cables, and the muscles to a Leyden jar; that the rules of working and conduction are the same; that the bath bears exactly the same relation to the body of the bather as the bulk of the earth does to telegraphs; and he thinks that Schiff's experiments on nerves and electricity must for the future be the basis of the theory of the operation of baths.]

But the important question is the practical one: What sort of baths are most favourable to electrical movements? Obviously those which conduct electricity best; and thus, generally, mineral water-baths, rather than those of common water. Comparative experiments have been made as to the conducting power of different mineral waters with delicate multipliers. Pure water is the worst conductor; concentrated solutions are better conductors than weak ones. Chloride of sodium is better than salts of zinc or of copper. The nature of the substance dissolved, as well as the degree of concentration, make a great difference; and this is the explanation how, though there are a hundred waters apparently the same in composition, yet no two act exactly alike, and each has its specific action. This specific action is really electrical, and accounts for the differences and the characteristics of various baths; and explains how artificial never equal natural waters. The physicist discovers differences which neither sight, nor taste, nor smell, nor chemistry can detect.

After the striking facts which we owe to physiologists and to physiologists, there can no longer be any doubt, that a great portion of the therapeutic virtues of baths of mineral waters depends upon electrical conduction, and that, in this respect, salt baths must occupy an important place. As galvanism serves for various curative local processes, so does the salt-water bath for the whole system. It is directed, first, towards the molecules of the nervous system, to force them into that state of polarity, which is the foundation of all healthy nervous action, of innervation as well as of its propagation. Its second action is its electrolytic operation, by which it brings exudations into a state fit for absorption. And it is by no means theory alone that has led me to these conclusions. As to the favourable influence of salt baths, a ten years' experience has given me ample opportunity of studying their effects. I have been especially pleased with the results in numerous cases of neurosis beginning with simple relaxation, and that have gone on to most severe functional disturbances of the nervous and muscular system.

I am far from supposing that I have exhausted the subject of the operation of salt-water baths; but I think that I am doing well in directing attention to electricity, which is more connected with many of our intimate actions and common experiences than we are apt to suppose. Thus it is a common com-

plaint that gutta-percha shoes are unhealthy, and this chiefly owing to their want of porousness. It has been overlooked that they are non-conductors and isolators.

J. MACPHERSON, M.D.

ANATOMY AND PHYSIOLOGY.

WATNEY ON THE MINUTE STRUCTURE OF THE INTESTINAL TUBE.—Mr. Herbert Watney publishes (*Centralblatt für die Medicinischen Wissenschaften*, no. 48, 1874) a preliminary notice of researches on this subject conducted in the Brown Institution, some of which have already been recorded in *Proceedings of the Royal Society* (April, 1874). His results are as follows.

1. In the stomach of the dog, and in the stomach, small intestine, and colon of the rabbit, the nuclei of the epithelia on the mucous surface often show signs of division. There are found, besides, near the base of the epithelium, small round cells, easily distinguishable from the lymphoid corpuscles contained in the epithelium. Finally, there exist intermediate forms between the ordinary epithelia and the above-mentioned small cells, which are arranged in groups of two or three.

2. In the epithelium of the intestinal mucous surface of many animals (monkey, sheep, cat, dog, rabbit), there is a tissue belonging to the connective tissues. This tissue either (a) forms a delicate reticulation with occasional nuclei at the intersections, lying under and between the epithelial cells and extending by prolongations to the free mucous surface, or else (b) is composed of round lymphatic cells. A similar intra-epithelial network is found in the pyloric glands of the stomach and in the Lieberkühnian crypts. The round lymphatic corpuscles of the epithelium are chiefly found in the villi of the small intestine, in the colon, and in the pylorus. The epithelium of the mucous surface covering the tonsils and the lymphoid follicles of the pharynx, as well as the epithelium which crowns the projecting portion of the follicles in Peyer's patches, is infiltrated by a delicate network of nucleated cells, the meshes of which contain lymphatic corpuscles; that is, by a true adenoid tissue which is directly continuous with the adenoid tissue of the underlying follicles. In some parts of the pharynx, this infiltration is so marked that it appears as if the epithelium were wanting.

3. Under the network contained in the epithelium of the intestinal mucous surface, is found a tolerably complete membrane composed of large, pale, flat nucleated cells. The *membrana propria* of the gastric glands and of the Lieberkühnian crypts is continuous with this membrane, and presents the same structure.

4. The epithelium lining the lymphatics of the mucous membrane communicates directly with the adenoid reticulum of the same, and it is easy to show that the endothelial plates of the former are only the transformed connective tissue-cells of the latter.

5. In animals killed during the absorption of fatty matters, the fatty molecules (easily recognised by being stained black with osmic acid) are situated (a) in rows between and around the epithelia of the mucous surface in the small intestine; (b) in the reticulum situated at the base of the epithelium; and (c) as some observers have already noticed, in the connective tissue stroma of the villi, whence they

penetrate into the lymphatics of the villi. We must then suppose that the fatty molecules do not penetrate the epithelial cells themselves, but rather the intra-epithelial network, whence they pass into the network of the villi, in communication therewith, and finally into the central lymphatic, the walls of which are continuous, as before stated, with the network of the villus. Fatty molecules are absorbed in the same manner by the mucous surface of the pylorus, and generally by the glands of the stomach.

6. The network of nucleated cells in the mucous membrane forms a special sheath around the blood-vessels which traverse it, and around the bundles of smooth muscle. The bundles of smooth muscle which pass towards the mucous surface, separate near the surface into muscle-cells, each cell receiving a prolongation of the sheath before-mentioned. In the villi of the smooth intestine, in the papillary projections of the mucous membrane of the pyloric region of the stomach, and in the warty projections of the rabbit's colon, the sheath of each muscular cell appears to communicate with the large pale cells of the subepithelial membrane already spoken of.

7. The vessels of the papillary projections in the pyloric region are surrounded by perivascular lymphatic sheaths, the walls of which are formed by connective-tissue cells arranged in the manner of an 'endothelium.'

J. F. PAYNE, M.B.

TARCHANOFF AND MALY ON THE FORMATION OF THE BILE-PIGMENTS.—Schiff had proved that the liver possesses the property of attracting from the blood absorbed bile-acids injected into the alimentary canal, and again excreting them in the bile. The same property is possessed by the liver with relation to the bile-pigments. According to J. Fürst Tarchanoff (*Pflüger's Arch.* ix. 329, abstract in *Centralblatt für die Medicin. Wissensch.*, no. 2, 1875), the bile excreted in equal intervals of time from a permanent fistula showed quite an enormous increase of bile-pigments, when a solution of hæmoglobin or water was injected into the blood of the animal (dog); on the contrary, a relative diminution in the fixed constituents. It can either be assumed that the liver forms and excretes a large quantity of bile-pigments from the increased supply of dissolved hæmoglobin, or that this transformation has already occurred in the blood, and that the liver, in virtue of an increased attractive property, had only extracted and excreted the colouring matter already present in large quantities in the blood. The latter view is favoured by the fact that, after injection of a solution of bilirubin, the colouring matter of the excreted bile is correspondingly increased. So rapidly and completely does this elimination occur, that neither in the bladder, nor in the urine obtained from a fistula of the ureter present at the same time, could the presence of bile-pigments be proved. A similar experiment had already been made by Feltz and Ritter (*Journal de l'Anatomie et de la Physiologie*, 1870, p. 315) who injected four grammes of bilirubin into the blood of a dog, whilst the author only injected 0.1 gramme. If it be remembered that bile-pigments can be formed in the blood outside the liver, and further that the liver possesses a very pronounced property of absorbing and excreting bile-pigments, then the hypothesis that this pigment is formed outside the liver becomes very probable. The above experiments also show why in hæmatogenous icterus a tinging of the tissues does not occur. As a

symptom of this icterus, an abnormally strong colouration of the faeces is to be observed. Lastly, the author remarks that, after the injection of large quantities of distilled water or weak solution of hæmoglobin, the urine of the bladder as well as of the ureter show Gmelin's reaction in nearly equal intensity, from which it appears that the bladder does not possess the property of taking up and retaining bile-pigments in the urine.

R. Maly writes on the subject in the *Wiener Sitzungsab.*, 1874, Band lxx. 3 Abth., abstract in *Centralblatt*.

1. *Analysis of an Ox-gall Stone*.—Almost one-third of this stone consisted of bilirubin. It contained in 100 parts soluble biliary matter, 18.09; etherial extract, 5.28; phosphate and bilirubinlime, 1.41; bilirubin, 28.1; residue and loss, 47.13. The residue was olive-coloured, contained still some lime with bilirubin, earthy-looking stuffs, and inorganic salts.

According to Maly, bilirubin has the formula $C_{16}H_{18}N_2O_4$; according to Städeler, $C_{16}H_{20}N_2O_5$. Maly has prepared biliverdin from perfectly pure, previously analysed bilirubin, and convinced himself of the correctness of his formula. A further proof of the correctness of Maly's formula lies in the following. When the formation of biliverdin from bilirubin occurs by the simple addition of oxygen, as Maly's formula expresses, then 100 parts bilirubin must give 105.6 parts of biliverdin. By adding the remaining dissolved portion, the author actually obtained from 100 parts of bilirubin, 104.3 of biliverdin, so that there is no doubt of the correctness of his formula.

WM. STIRLING, D.Sc., M.B., Edinburgh.

BRAUN ON THE ELECTRICAL EXCITABILITY OF THE CEREBRAL HEMISPHERES.—Dr. H. Braun, in a recent number of Eckhard's *Beiträge*, gives the results of some experiments he has undertaken with a view of ascertaining the accuracy of Hitzig's statements. He finds, in opposition to Hitzig, that the dura mater is not highly sensitive, even when it has been laid bare for some time. The experiments on the brain were made upon narcotised dogs with feeble induction currents, and were generally confirmatory of those of Hitzig. A new point, however, was the discovery of two centres in the same hemisphere, the irritation of which called forth similar movements. Thus there were two for the muscles of the neck. On irritation with weak currents, not only did muscular contractions take place during the passage of the current, but often subsequent contractions occurred when the current was broken, and these sometimes spread so that the animal became generally convulsed. In regard to the question as to whether the contraction observed in Hitzig's experiments depends upon the conduction of the current through the tissues to distant parts, Braun shows that section of the fibres springing from the vicinity of the irritated surface stops all manifestation of nervous excitation, the movements suddenly ceasing. So also, if the grey matter were sliced away, on the application of the electrical current to the cut surface of the whole substance, *i.e.*, to the ends of the nerve-fibres arising from the cortical substance, the same groups of muscles were thrown into action as when the surface of the grey matter itself was stimulated in this region.

PATHOLOGY.

NOEL ON ENCHONDROMA OF THE BASE OF THE SKULL.—The history and the subsequent necropsy of a very remarkable instance of this kind are related by Dr. Leon Noel (*Annales d'Oculistique*, November and December, 1874). The patient was a man, aged twenty, who had generally enjoyed good health until July, 1873, when he suffered severe pain around the left orbit, which lasted for three days without impairing his sight. In the following September he became giddy, the pain returned and he found his left eye had become blind, and at the same time that the right eye was affected. He also heard noises in his ears. The patient's previous history threw no light upon the nature and the cause of these symptoms. On the right side the eyelids were swollen, and their veins were much dilated; the eyeball was pressed forwards, and was barely covered by the eyelids, being almost immovable; the conjunctiva was chemosed and the pupil dilated and sluggish; the intraocular tension was slightly increased, and the vision reduced to $\frac{1}{40}$. The media were transparent, but the optic disc was cloudy and ill defined, and the retina around it was infiltrated; the arteries were small, but the veins were tortuous and engorged. No tumour could be detected within the orbit; there was a good deal of pain at times in the branches of the fifth nerve. On the left side, the condition of the eye was much the same, although to a less degree; but the optic disc on this side was white and atrophied, and there was no retinitis. There was no appearance of pulsation around either eye. On the right side the patient heard a murmur isochronous with the pulse, but no murmur could be detected with the stethoscope; the hearing was impaired on both sides but more so on the right than on the left side. Smell was entirely abolished, and the nasal fossæ were filled with puriform mucus, so that air could only pass with difficulty, but otherwise nothing abnormal could be detected in the nasal cavities. The patient complained of want of taste; but when he was quite blind, it was clear that he could well distinguish the different flavours of various kinds of foods. With the exception of pains in the frontal region, the patient had no impairment of sensibility or of motor power anywhere else than as regarded his eyes. The diagnosis was that a tumour of some kind had formed at the base of the skull, but was situated outside the brain and its membranes. The progress of the case was shortly as follows. At first there was an amendment in all the symptoms, soon followed, however, by complete blindness in the right eye, and by increased displacement of both eyes forwards. In a short time, there was increase of pain, and a firm elastic tumour was now felt at the inner aspect of each orbit. The tumour increased steadily, and the exophthalmos became extreme, on each side; and there was anæsthesia of the region supplied by the second division of the fifth nerves; the cornea of each eye became opaque. In April, 1874, the soft palate had become displaced by a tumour behind it. During the next three months the patient was unable to take much food, and became very feeble; but there was no loss of intelligence or of motor power. On October 16, 1874, he died, rather suddenly, just ten months after his admission and eighteen months after his first seizure with pain.

Necropsy.—A semitransparent and nonvascular tumour completely filled both orbits; it bulged into the pharynx, into the left pterygo-maxillary fossa, and into the nasal cavities. On removing the brain, the tumour had involved the base of the skull from the crista galli to the occipital foramen; it projected backwards into the posterior fossa so as to compress the medulla oblongata. The middle fossa was entirely filled by the tumour, and the sphenoid bone was no longer visible. The brain presented a deep excavation on its under surface, but its substance was unchanged generally speaking; around the olfactory bulbs, however, it had become softened. The pons Varolii was small and flattened. The medulla was flattened and compressed to a remarkable extent, but its tissue was unaltered; it is probable that compression of its substance was the immediate cause of death. The olfactory nerve on the left side was natural; but that on the right side was softened, and could not be distinguished from the softened brain-tissue around. The optic commissure was flattened and hardly recognisable. The right optic nerve was unaltered; but the left nerve was flattened and gelatinous. The third, fourth, and sixth nerves, in their intracranial portions, were natural, but were soon lost in the substance of the tumour. The fifth, though involved in the tumour, could be traced forwards to some considerable extent.

In its structure, the tumour was nonvascular and generally soft, its firmest portions being in the orbits, a large portion of it being gelatinous in consistency, and in one or more places containing cysts of irregular size. Under the microscope, the structure was that of hyaline cartilage.

The case is of great interest, in showing as it does the great extent to which the brain-substance will admit of pressure, provided it be gradual, without any impairment of intelligence or of general motive power.

BOWATER J. VERNON.

DURET and CARVILLE ON OLD SOFTENING OF THE BRAIN IN A DOG.—Chance brought under the notice of MM. Duret and Carville a fact in comparative pathology, which will have a great effect in the discussion of the question of the existence of motor centres. They were seeking in a dog, whose brain had been partially uncovered, the phenomena produced by electric excitement of the cortical layers, specially those assigned by Ferrier to the motor centre of the limbs. Notwithstanding the employment of powerful currents, they did not observe any marked phenomena; on this occasion, the irritation of the grey cortex of the brain produced no results whatever, for the reason that nature had produced a lesion which the most skilful experimenter would find it very difficult to repeat. There was in the animal a focus of old softening which had destroyed the centrum ovale of Vieussens, the peduncular expansion above the corpus striatum, leaving the corpus striatum itself intact. The dog, however, had no hemiplegia, nor any perceptible difficulty, either in standing or in walking.

SAVORY ON TUBERCULOUS TESTIS.—Mr. Savory, in a clinical lecture reported in the *Lancet*, of Jan. 30, calls attention to the loose way in which the term 'tuberculous' is applied to cases of chronic inflammatory disease of the testicle. The majority of these cases have no connection whatever with tubercle, but are the result of chronic orchitis, frequently of syphilitic origin, and what is mistaken

for crude tubercle is really cacoplastic lymph and inspissated pus. The diagnosis of true tubercular disease from that which is erroneously so called by mere examination of the organ, even after its removal by operation, is often difficult; the history of the patient and his general constitutional state are far more reliable guides. But it is of great importance to make the distinction, since the treatment depends upon the diagnosis; in one case mercury and discutient applications would be beneficial, and in the other highly injurious, to the patient.

J. W. LANGMORE, M.D.

MEDICINE.

EISENLOHR ON ULCERATIVE ENDOCARDITIS AND MICROCOCCUS-EMBOLISM.—Dr. C. Eisenlohr records a case of this kind which occurred in Professor Friedreich's clinic at Heidelberg (*Berliner Klinische Wochenschrift*, 1874, no. xxxii.). The real nature of the disease was not discovered until after death.

The patient, a labourer aged fifty-eight, was under treatment in the hospital for the last five days only of his life. At his admission, he was able to give a short but very imperfect account of himself. He had been an habitual drinker, had suffered for weeks from bronchitis, but had been able to work until quite lately. Fourteen days before, he had been suddenly seized with retention of urine and pain in the region of the bladder and loins; the catheter had to be passed frequently. Thereupon there had supervened disturbance of the general health, anorexia, nausea, and headache, diarrhoea, a feeling of oppression and heavy pain in the chest, and increased cough. During the last few days, the retention of urine had disappeared. When first examined, the patient was somewhat cachectic and sallow, and especially remarkable for his manner, which was sometimes restless and talkative, at other times more apathetic. Physical examination revealed general bronchitis; slight enlargement of the heart with weak impulse, dull sounds, and no bruit; and nothing remarkable about the abdomen. Urination was normal; the urine, 1010, slightly albuminous, with a deposit of pus, epithelium and several granular casts; the catheter was passed easily, and there was no evidence of urethral stricture. The patient complained chiefly of tightness of the chest and of the cough and difficult expectoration. The sputum was mucoid, without blood. The temperature at night was 101.5°, and the pulse 112, small and soft.

From first to last there was little change in the physical signs. On the night after his admission the patient was delirious, and passed his motions and urine in the bed; there was moderate diarrhoea. Next day consciousness was more deeply affected, and the heart weaker. On the third day these symptoms increased, diarrhoea continued, and on the sixth day the patient died after a period of complete unconsciousness. The temperature, after the first evening, was as follows:—Second day, morning, 100.4°, evening, 102.8°; third day, morning, 100.8°, evening, 103.7°; fourth day, morning, 102.2°, evening, 103.7°; fifth day, morning, 102.2° evening, 101.5°; sixth day, morning, 103.7°. On the same occasions respectively, the pulse was—104, 104; 88, 116; 108, 120; 120, 124; 140.

Twenty-four hours *post mortem*, the following con-

dition was found. The heart contained liquid lake-tinted blood; the myocardium was very flabby. The right aortic valve and both flaps of the mitral presented ulcerated spots covered with decolorised fibrin. The lungs were œdematous; the pulmonary arteries normal. The spleen was very large, and contained a single metastatic focus. The kidneys contained many small abscesses of various sizes. The liver presented a few clear yellow points; it was moderately congested, and somewhat dull in appearance. In the jejunum a single rather large ulcer was found, with a peculiarly brownish-red surface; in the transverse colon there were also yellow points of various sizes, with a hyperæmic zone. The bladder was not remarkable. In the membranous portion of the urethra there was found a breach in the wall, leading into an ulcerated cavity about the size of a nut; the latter contained an opaque brown thickish fluid. The prostate was not enlarged. In the cranial cavity two small hæmorrhages were found, in connection with the meninges; one of them communicated with a cavity as large as a nut in the extremity of the left posterior cerebral lobe, which was filled with a fresh blood-clot, and had irregular friable walls. Smaller hæmorrhages were scattered over the pia mater of both hemispheres; some of the spots contained a prominent central yellow point.

The various organs were subjected to very careful microscopical examination. The myocardium of the left ventricle presented abundant micrococcus colonies, in the form of rounded and tubular masses. In the liver, lung, and altered spots of the pia mater, no micrococci could be discovered. The microscopic appearance of a section of the diseased cardiac valves is described as very striking, unquestionable micrococcus colonies being seen situated between the fibrillar elements. These colonies presented the appearance of rounded balls of a countless number of minute highly refracting granules embedded in an opaque substance, exactly corresponding with previous descriptions, e.g., of the *Zooglyphen* of Billroth. By the apposition of such rounded masses there were formed sausage-shaped or tube-shaped structures, which were sharply defined and of somewhat considerable size. The yellow spots described as found in the transverse colon presented the clearest evidence of the embolic nature of these changes. Here a fortunate section revealed a very small artery, filled with a whitish mass, which consisted of innumerable coccus-heaps between red and white blood-corpuscles.

Eisenlohr concludes that the *fausse route* in the urethra must be considered the starting point of the infectious process in this case, although it was certainly a very insignificant local change. Very probably the septic matter absorbed from this source induced the ulcerative process in the cardiac valves; embolism was the secondary result in the situations described. The other alterations within the cranium were also of interest.

The author declines to express any decided opinion on the relation of the micrococci to the local and general disturbances in this case. He refers briefly to the investigations of Wagner, Leube, W. Müller, Burkart, Winge, Heiberg, and Billroth, on this subject, and concludes that it is most advisable to consider with Virchow the local process as diphtheritic (*diphtheritisch*) without prepossession by any parasitic theory.

BECKER ON PARACENTESIS IN SERO-FIBRINOUS PLEURISY; ITS INDICATIONS AND VALUE.—Dr. L. Becker, of Munich, discusses this question, and records an illustrative case (*Berliner Klinische Wochenschrift*, 1874, nos. 41 and 42). He mentions the great variety of opinion which at present prevails on the indications for aspirating a pleural effusion—from the one extreme of operating only as a vital necessity, to the other of applying this method of treatment in every case of pleurisy so as to shorten the process and facilitate resorption.

The author begins by glancing at the pathology of inflammation of the pleura. Hyperæmia, shedding of the epithelium, fibrinous exudation, effusion, compression of the lung, and formation of vessels in a 'false membrane' are the successive steps of the process. From the capillaries in the false membrane there occurs effusion, and perhaps hæmorrhage. But when the pressure within the pleural cavity has reached that of the vascular system, an endosmosis takes place, and the hyperæmia declines on account of the compression of the vessels in the root of the lung. The 'false membrane' becomes connective tissue and contracts; the newly formed vessels perish; more fluid is absorbed; the fibrin undergoes fatty degeneration; and adhesion and healing follow in due course. The process is somewhat different when the products are purulent, but no sharp distinction can be drawn between acute and chronic pleurisy.

An answer may now be offered to the question whether removal of part of these inflammatory products will promote healing. Dr. Becker replies by considering several cases. 1. Sudden and abundant pleuritic effusion may cause extreme dyspnoea by diminishing the pulmonary surface, e.g., in the event of previous circulatory disturbances; the brain may then become œdematous, and the heart may be dangerously compressed, and its substance affected. The author allows that paracentesis is here demanded; there is a vital indication to relieve the condition by any possible means. 2. The heart may be displaced, but the pulse and respiration may remain good. How far will removal of part of the fluid aid resorption if effusion have reached its limit, or resorption have begun? The lung will return so far; circulation is restored in the vessels of the pulmonary pleura; friction is again set up: in short, all the conditions of transudation into the pleural cavity are re-established, and it returns. The previous pressure is restored; the system has been drained of albumen and salts; and the condition of the heart is as before, or even more serious. 3. The lung may be already adherent when the operation is undertaken. After a time the fluid will not flow into the aspirator, the tube collapses, and air enters the pleural cavity. That this accident happens, is proved by the fact that pneumothorax is frequently so developed; as well as by the experiment of aspirating a tightly corked bottle into which air will afterwards be found to have passed. But pneumothorax is not the only evil effect of aspirating the chest when there are adhesions; the pulmonary alveoli suffer dilatation; the lung becomes congested; and bronchitis, hæmoptysis, and pneumonia may follow. For all these reasons, Dr. Becker argues that it is better to leave the fluid alone and allow nature to effect the cure. Besides, it is not comprehensible how partial removal of the fluid shall facilitate the resorption of the remainder. There are yet other reasons for not operating: marasmus is not prevented

by fresh pleurisy; neither is the risk of sudden death, which depends upon fatty degeneration of the heart. And the more frequent the aspiration, the more probable is the occurrence of empyema.

Dr. Becker's case illustrates the preceding points very well. A woman, aged thirty-two, was found to be suffering from well-marked right pleurisy with abundant effusion; she had been ill for a fortnight. The temperature was 99.5° , the pulse 130, and the respirations 50. Dyspnoea was extreme, faintness supervened upon any movement, and swallowing was very difficult and followed by suffocative attacks. There were, further, both symptoms and signs of slight left pleurisy. Here the indications for thoracocentesis were vital, and 614 cubic centimètres of slightly red fluid were removed at once by the aspirator: the lung expanded a hand's-breadth, the patient was relieved, and the respirations fell to 30. But during the operation the sputum became tinged with blood; the tube collapsed after a time, and the operation was interrupted. Immediately afterwards, signs of circumscribed pneumothorax were discovered. Two days after the operation there was evidence of bronchitis and of return of the pleuritic effusion; and on the fourth day the symptoms were again so urgent, that aspiration was repeated and 456 cubic centimètres of fluid removed, of which about a third was blood. Considerable relief was given, but only for a few hours; and the patient died the same night of suffocation and exhaustion.

Post mortem, a large quantity of air was found in the right pleural cavity, and a bloody serous effusion filled the rest of the space. The lung was perfectly compressed; an old adhesion existed posteriorly between the upper part of the inferior lobe and the chest-wall. The lung had not been wounded.

Dr. Becker points out that in this case the operation was followed, not only by pneumothorax, but by congestion, as was manifested by the hæmoptysis, bronchitis, and hæmorrhage into the pleural cavity.

J. MITCHELL BRUCE, M.D.

RECENT PAPERS.

- Dilatation of the Stomach. By Dr. A. W. Foot. (*Dublin Journal of Medical Science*, March, 1875.)
 Some Cases of Affections treated by Compressed Air. By Dr. Sieffermann. (*Gazette Médicale de Strasbourg*, March 1.)
 On the Pleural Bruits perceived on Auscultation. By M. Gallard. (*Le Progrès Médical*, March 6.)
 Two Cases of Tetanus treated by Chloral. By M. Pugliese. (*Lyon Médical*, March 7.)
 On the Treatment of Bright's Disease. By Prof. Hecht. (*Revue Médicale de l'Est*, March 1.)
 On Aphasia, in its Medico-Legal Bearings. By Dr. Gallard. (*L'Union Médicale*, March 9.)
 A New and Successful Treatment of Intestinal Obstruction. By Dr. Verstraeten. (*Annales de la Société de Médecine de Gand*, February, 1875.)
 Lectures on Addison's Disease. By Dr. Headlam Greenhow. (*British Medical Journal*, March 6 and 13.)
 Lectures on Puerperal Fever. By Dr. R. J. Lee. (*British Medical Journal*, March 6 and 13.)
 Erythema and Rheumatism. (*L'Union Médicale*, March 13.)
 On Cardiac Intermittence. By Dr. L. Lereboullet. (*Gazette Hebdomadaire*, March 12.)
 A Case of Diabetes Mellitus with Cerebral Tumour. By M. Magnin. (*Lyon Médical*, March 14.)
 On Erysipelas as a Complication of Leucocythæmia. By F. Hanot. (*Le Progrès Médical*, March 13.)
 Infection and Contagion. By Dr. Anglada. (*Montpellier Médical*, March, 1875.)

SURGERY.

NICOLADONI ON DUMREICHER'S METHOD OF TREATING UNUNITED FRACTURE.—Dr. Carl Nicoladoni, of Vienna, reports in the *Wiener Medizinische Wochenschrift*, no. 5, 1875, two cases of threatening failure of union in fracture of the tibia, in which Dumreicher's method was carried out with complete success. On the supposition that delayed and faulty union are due to deficient vascularisation and a faulty supply of nutritive material at the seat of fracture, this method is practised for the purpose of artificially producing a persistent hyperæmia of the parts at the seat of injury, so as to set up here a constant irritation of all the tissues, and at the same time to afford to these irritated tissues a constant and excessive supply of nutritive material. The injured leg, in which there is a tendency manifested to the formation of a false joint, is enveloped from the toes to a part a little below the fracture by a strong flannel bandage. Four wedge-shaped pads are applied, two above and two below the fracture, in such a manner that the broad ends of the upper and lower pairs are opposed to each other, and that between them a free surface of skin is left which corresponds to the seat of fracture. These pads are kept in position by strips of adhesive plaster, and covered by a thin wooden splint, over which a bandage is firmly applied. The whole limb is then kept at rest on an ordinary splint. By the application of the bandage below the fracture, the peripheral portion of the limb is protected against the injurious results of pressure made by the pads above the ankle. The pressure of the lower pads and of the flannel bandage induces an active arterial hyperæmia of the parts about the false joint, which hyperæmia is more or less restricted to these parts, as the two pads are so applied as to retard the backward flow of venous blood, though not interfering very much with the arterial supply. After an application of this apparatus for twenty-four hours, the skin becomes red and hot, and the fractured portion of bone can no longer be felt, on account of the swelling of all the superjacent soft parts. This swelling is firm and differs altogether, according to Dr. Nicoladoni, from ordinary œdema. On the second and third days, the parts between the wedge-shaped pads become more swollen and firmer; but this swelling will speedily disappear on the removal of the pads, and will not persist and do any good until after the apparatus has been retained for five or six days. In favourable cases, after an application kept up, with occasional short intervals, for three or four weeks, the fragments become much less movable, and cannot be examined and moved without much pain. The limb can now be placed in a firm apparatus of plaster of Paris or water-glass, and in a few weeks the fracture will become firmly consolidated. In the first case reported by Dr. Nicoladoni, the pads were applied during eight weeks, with occasional intervals of rest, lasting for two days. A gypsum bandage was then applied, and at the end of the tenth week the fragments of tibia were found to be firmly consolidated. In the second case the pads and bandages were applied during a period of two months; six weeks after their removal and the application of a firm bandage, there was perfect union.

Dr. Nicoladoni reports also in this contribution a case of double abscess of the tibia treated by opera-

tion, in which a sluggish condition of the granulations and retarded healing in one of the exposed cavities in the bone were overcome by applying the above-mentioned apparatus of pads and bandages. This case is cited in order to prove that Dumreicher's method, where successfully applied in cases of delayed union of fracture, acts not merely by causing irritation of the periosteum and by setting up an highly productive periostitis, but also by stimulating to osseous outgrowth the whole thickness of the bone just above and below the seat of fracture.

W. JOHNSON SMITH.

COURTY ON THE TREATMENT OF ANAL FISTULA BY THE ELASTIC LIGATURE.—In a clinical lecture delivered at the Hôtel-Dieu, Saint-Eloi, Professor Courty, of Montpellier (*Bulletin Général de Thérapeutique*, January 30, 1875) highly extols the use of the caoutchouc ligature for deep and extensive rectal fistula. For years, he says, he has in all bad cases avoided the knife, believing that considerable danger from bleeding is incurred at the time of operating, and also afterwards, especially when the case is complicated by the existence of internal hæmorrhoids; there is also an additional source of danger, a large suppurating surface is left which is liable to erysipelatous inflammation, and may give rise to phlebitis, purulent infection, etc. Another objection to the wound made by incision is, that it requires much and constant dressing, to obviate the tendency to the formation of a new fistula by the growing together of the divided parts, which dressing is alike troublesome to the surgeon and painful to the patient. These, among other considerations, have induced Dr. Courty to prefer the linear écraseur, or the 'ligature ulcérate,' and with both of these he has met with considerable success; nevertheless, these methods have their disadvantages. The operation by the écraseur is excessively painful, and so is the ligature, either of thread or wire, as it has from time to time to be tightened; these and other objections are entirely removed by the adoption of an India-rubber ligature; when this is passed through the fistulous track and securely knotted, Dr. Courty says he considers the surgeon's work is really ended, scarcely any supervision is required, and no dressing needed; all that is necessary is to keep the part clean, and the patient may inject into the fistulous passage from time to time a lotion of coal-tar or carbolic acid. All Dr. Courty's patients have done remarkably well. There has been no hæmorrhage; the pain has been but slight and easily controlled by sedatives; many patients after the first day did not keep their beds, but walked about the chamber and even went out of doors; and no secondary accident has occurred, the wounds healing with great facility. To lessen pain at the operation and give ease after it, Dr. Courty directs his patients to take every hour (commencing some hours before the operation) small doses of morphia and chloral alternately; this is continued until all the pain subsides. The ligature comes away in from six to eighteen days, the most usual time being nine days by which time the wound is generally nearly cicatrised. Dr. Courty prefers the tubular to the solid India-rubber, the former being, in his experience, of more uniform strength and less liable to fracture.

W. ALLINGHAM.

VOLTOLINI ON A PIECE OF NUTSHELL LODGED IN THE LARYNX FOR TEN MONTHS.—Voltolini (*Berliner Klinische Wochenschrift*, February 8,

1875), relates the case of a boy, ten years of age, who was playing with his schoolmates without paying attention to a piece of nutshell he had in his mouth at the time. Suddenly he was seized with dyspnœa, in consequence of which tracheotomy had to be performed. The boy soon got better, so that the tracheal wound was allowed to heal. He could speak and sing, and did not complain of pain. One night, having retired to bed without any premonitory symptoms whatever, he was aroused from his sleep by a very intense attack of dyspnœa. It was then found necessary to again dilate the tracheal wound. A foreign body was looked for in the larynx, but five surgeons could not find any. In the mean time the boy began to complain of burning pains in the larynx, and his attacks of dyspnœa returned, whenever an attempt was made to remove the cannula. This state lasted for ten months. Voltolini, however, was convinced that there must be a foreign body in the trachea, and he invented an instrument for the better illumination of this (for the description of which the reader is referred to the original). Voltolini discovered then a brown hard body situated at the posterior wall of the trachea. It was firmly impacted there, and could only be removed with some force. It was a piece of nutshell, fifteen millimètres long and ten millimètres broad, so situated with the convexity towards the posterior wall of the trachea, that the concavity allowed the passage of the cannula.

I. B. BERKART, M.D.

RECENT PAPERS.

- On the Treatment of Varus. By Dr. Dubreuil. (*Gazette des Hôpitaux*, March 2, 1875.)
 Contribution to the Study of Naso-Pharyngeal Polypi. By M. L. E. Dupuy. (*Le Progrès Médical*, March 6.)
 On Hæmorrhage in Esmarch's operation at Lyons. By M. Dutrois. (*Lyon Médical*, March 7.)
 Large Vesico-Vaginal Fistula cured by Cauterisation. By Dr. Galeus. (*Annales de la Société de Médecine de Gand*, February, 1875.)
 On the Spasmodic Diseases of Stumps. By Dr. Weir Mitchell. (*Philadelphia Medical Times*, February 13.)
 Note on Ligature of the Lingual Artery in Cases of Canceroid Disease of the Tongue. By M. E. Schwarz. (*British Medical Journal*, March 13.)
 On the Reduction of Luxations of the Thigh by Flexion combined with Rotation of the Limb. By Professor Dolbeau. (*Bulletin Général de Thérapeutique*, March 15, 1875.)
 Perityphlitic Abscess, with remarks upon the Surgical Treatment thereof. By Dr. Gouley. (*Virginia Medical Monthly*, March, 1875.)

SYPHILOGRAPHY.

LEWIN ON INFECTIO SINE COITU.—Dr. Lewin brought before the Medical Society of Berlin (Pick and Auspitz's *Vierteljahrsschrift für Dermatologie und Syphilis*, 1874) some instances of syphilis communicated through kissing, suckling, and inheritance, which illustrate several important points in the natural history of the disease. In the first group of cases were two women and their children. One woman had an indurated scar on the lower lip, and a maculo-papular eruption of the body. She had noticed in the seventh month of her pregnancy a pustule on her lower lip; having also for some time previously remarked that her husband had sore lips. This pustule left a hard scar. The child, born prematurely, had several spots and small ulcers on the skin, and gummous orchitis. The second woman,

having given birth to three healthy children, was infected by suckling a syphilitic child. She had a hard sore on the right nipple and constitutional syphilis. Lewin holds that these cases establish, among other better known facts in the natural history of syphilis which he enumerates, certain points less generally admitted, viz., that a woman, even when infected in the latter months of pregnancy, and suffering only from early secondaries, may give birth to a child who presently shall have a tertiary form of the disease; and again, that tertiaries do not need mercury for their production. The next proposition he laid down was, that the symptoms of inherited disease which manifested themselves at birth may disappear without any treatment. The disorder may then become latent, and break out again several years later. [Though this is doubtless a correct statement, Lewin does not adduce any evidence in this paper to confirm it.]

In the following group, a woman with a child at the breast, by giving suck to a syphilitic child, was inoculated herself, and subsequently infected her own child and her husband. The husband died not very long afterwards from cerebral affections, which the *post mortem* notes proved to be syphilitic. The woman was married to a second husband, who never had syphilis, notwithstanding that his wife had frequently syphilitic affections of the pharynx and larynx. Two children resulted from the second marriage, making her offspring three. The child of the first marriage, who had acquired syphilis at her mother's breast, was treated with mercury, and the symptoms disappeared. Nevertheless, she must have had further troubles, for when examined there were found scars and adhesions of the soft palate and a notch in the epiglottis. She, moreover, has suffered from her sixteenth year from lupus of the thigh, and periostitis of the os frontis and tibia, continually relapsing. At seventeen she married a man not previously syphilitic, who died a year and a half afterwards from tubercular meningitis. A premature child was born, who lived fourteen days. Two years later she was married again, and has now a child seventeen months old, who has scrofulous lichen and a gummy ulcer of the thigh. To continue the history of the children of the second marriage of the first woman; one died of syphilis at five and a half months; the other, now a girl aged thirteen, was healthy till her sixth year, when syphilitic eruptions appeared which continued for five years. This family is a striking example of the long duration of the syphilitic poison, and how deeply it penetrates into the organism. Further, one of these cases shows that a child may inherit syphilis which will not become apparent for several years subsequently to birth. Probably many cases of ulcerating skin-disease, especially lupus, are really manifestations of syphilis. Lastly, that hereditary syphilis can be derived solely from the mother is also clearly shown by these histories.

BERKELEY HILL.

MATERIA MEDICA AND THERAPEUTICS.

KARNER ON THE USE OF CHOCOLATE IN CHRONIC INTESTINAL CATARRH.—A series of articles from the pen of Dr. Karner have lately appeared in the *Allgemeine Wiener Med. Zeitung*, in which he

shows the value of this substance as an article of food. He refers especially to its use in chronic intestinal catarrh, and cites, among others, the following typical case of chronic catarrh of the intestines to illustrate its action in the simplest manner: 'Rosalia M., aged seventeen months, poorly developed and nourished, suffered from intense meteorism, numerous thin, fluid, feculent discharges, which alternated from time to time with normal stools. There was considerable emaciation, and the child also had intertrigo, of which there were frequent relapses. The diarrhoeas could be attributed only to poor nourishment. After strictly regulating the diet, small doses of Dover's powder and acetate of lead were first administered, and in three days were substituted by the chocolate, of which a cupfull was given daily. A dessert-spoonfull of the powder sufficed for a cup of chocolate. The mother was also instructed to allow the child as little fluids to drink as possible. The result was astonishing. The discharges decreased in number day by day, the weight of the child rapidly increased, and after a few weeks it had perfectly recovered; a remarkable change for the better was observed in its bodily development, and the intertrigo had not recurred.'

Such cases of chronic intestinal catarrh admit of no experimentation, as the physician is usually called at a time when the symptoms of disease have already assumed a threatening aspect. 'By this diarrhoea,' says Niemeyer, 'the previously healthy, well nourished child is at first but little affected; but some fatal judgment often asserts it to be a safety-valve that protects the child from convulsions during teething, and that must not be stopped. Hence it often happens that the doctor is not called till the child has become flabby and relaxed, and then it is frequently difficult to master the disease; the diarrhoea continues, the child emaciates more and more, and a large number of children die during their second year from chronic catarrh of the intestines.'

GUBLER ON THE ACTION OF CONICINE ON CUTANEOUS SENSIBILITY.—M. Gubler, in the *Bulletin de Thérapeutique*, for January 30, 1875, in the first instance relates facts showing that hemlock modifies sensibility, and specially points out the well-known phenomena of the death of Socrates, and the case recorded by Hunter, in which a man who had taken a large dose of hemlock lost the power of using his fingers. He goes on to relate a circumstance lately observed by him, in which this action on sensibility was of the clearest nature. A lady applied some conicine ointment with the fingers of her right hand to a cancerous tumour in the region of the liver, under which her husband was suffering. After some time the fingers with which she was rubbing the tumour, lost all feeling; she then changed the hand and used the left hand with a glove on, but again all sensation left the fingers. These phenomena disappeared quickly so soon as she left off using the ointment. M. Gubler lays stress on this fact as an evidence of the reality of the modifications produced by conicine in sensibility, a proposition already laid down by him in his commentaries on therapeutics.

PRÉVOST ON APOMORPHIA.—In the *Bulletin Médical de la Suisse Romande* for November, 1874, Dr. Prévost reports a case in which the subcutaneous administration of from three to four milligrammes of apomorphia in a woman attacked by angina compli-

cated with gastric troubles, produced a disquieting collapse and a tendency to syncope, which lasted from a quarter of an hour to twenty minutes, during which time the pulse could scarcely be felt, and the pupils were dilated. In this case, the usual vomitings appeared in about five minutes and were several times repeated. The patient fell into a profound sleep, which lasted about half an hour after the phenomena of collapse. The following day the patient was in a satisfactory condition, the vomiting having markedly improved her condition. It is a question whether in this case the state of collapse should be attributed to the mere effect of the sickness, or to the account of the apomorphia, though that was administered in very much smaller doses than is usual (one centigramme). M. Prévost refrains from pronouncing any opinion on this point. Bearing in mind the cases of collapse observed by Harnach, he recommends prudence in the administration of this drug.

OBSTETRICS AND GYNÆCOLOGY.

DAX ON THE EFFICACY OF BLOOD-LETTING IN THE OBSTINATE VOMITING OF PREGNANCY.—In a letter addressed to Professor Courty (*Archives Générales de Médecine*, January, 1875) Dr. Dax calls attention to a mode of treatment suggested in a periodical called *Agenda-Formulaire*, for 1874, under the head of vomiting; cauterisation of the cervix (?), induction of abortion (?).

Because pregnancy is the cause of the sickness, its arrest, it is said, cures the disease. In other words, to save the mother kill the child. As this manual is chiefly consulted by young practitioners, Dr. Dax warns against the adoption of the precept by inexperienced beginners, both on the score of its criminality and its danger, and advises in its stead bleeding; and in doing so, reviews the various opinions of this mode of treatment, held by several leading authorities.

Mauriceau, in his *Traité des Maladies des Femmes Grosses* (liv. 1, p. 109) recommends bleeding as very efficacious, and thoroughly indicated in cases where purgatives and other means have failed, and the sickness imperilled the life of the mother and child.

Chailly-Honoré counselled leeches to the epigastrium, if from the effects of vomiting this region were tender and painful; and general bleeding, above all, if the pain radiated into the loins and the hypogastrium. This treatment is rather intended by him to check and prevent abortion, than vomiting, which latter is treated by anodynes, emollients, etc. Burns, on the contrary, in his *Traité des Accouchements*, advises bleedings against distressing sickness, abstracting blood in proportion to the strength, vigour, and plethora of the patient and the state of the pulse; he states that, 'the universal testimony of accoucheurs and his own experience fully convinces him of the desirableness of this practice.'

Hefeland, in his valuable *Manuel de Médecine Pratique*, recommends, against excessive vomiting of pregnancy, 'bleeding, above all bleeding.' Professor Delmas opposed bleeding in obstinate sickness of pregnancy; whereas Alphonse Ménard bled, and did not at all regard it as an intractable affection. In a memoir published in the *Transactions Médicales* (May, 1831) in reply to the question 'which are the diseases to which pregnancy gives rise, which it cures, and which are those whose impetus

of progress it arrests?' he states that, 'bleeding should be general, local, in order to be employed here with effect. It is not essential that a state of plethora should be pronounced to practise the first—it often suffices that gastritis does not exist. I have frequently seen,' the author says, 'the most violent vomiting at all stages of gestation yield to the opening of a vein, in women of divers temperaments and of unequal strength.'

M. Dax gives a brief account of the results of five personal observations.

1. In 1844, a lady, pregnant for the first time, at the third month suffered from continued vomiting and nausea, which nothing relieved. She was bled to about three and a quarter ounces, and kept in a horizontal position for a couple of days and on a spare fluid diet. By the third day she was up and about; could eat well, and the sickness entirely disappeared. She was delivered at full term.

2. Madame P. (1855), who believed herself six weeks pregnant, vomited up to midday; less in the evening, and sometimes not at all. Treatment for fifteen days with anodynes, enemata, etc., made her worse rather than better. She was of an exceedingly nervous temperament, and was with difficulty persuaded to be bled. She was treated as in the previous case. On the fourth day she got up, and did not vomit again.

3. In October, 1863, M. Dax was consulted in the case of a primipara, pregnant four months, who had not ceased from vomiting since the commencement. She was attenuated, pale, thin, feeble, and very nervous. M. Dax advised repose, pastilles de Vichy, etc., with no amelioration at the end of eight days. Opium was ordered to be given, and the same treatment continued. She was no better, but vomited everything, and was anæmic to the highest degree. She was bled to between three and four ounces. The same after-treatment was followed as in no. 1. By the third day there was slight retching; no food was returned. From this day she could get up, and all vomiting ceased. She went her full term.

4. Madame S. (1872), a multipara, pregnant three months, had miscarried previously at seven months. When seen she was very pale and very thin, suffered in the kidneys, was continually sick, and had no sleep. She was ordered to bed without benefit. She was bled to the extent of about three ounces and a half, vomited no more, and was able to sleep two hours. At the end of fifteen days she could get up, walk, sleep, and eat. She had no return of the sickness, and was confined at full term.

5. In September 18, 1874, M. Dax saw Madame Ch., who suffered from the kidneys. She had borne once, and was pregnant between three and four months. She was continually sick. He took away about three ounces and a half of blood, and advised rest in bed and a spare diet. No sickness returned. What was most remarkable was, that the ascitic fluid, which was considerable in the peritoneal cavity, entirely disappeared, and the patient, he was led to believe, continued well, and gestation proceeded normally.

In Case 3, the peril to mother and child was extreme. The danger to mother and child by this treatment is imaginary—it saves both.

In conclusion, the author remarks that, although he believes he has conclusively proved the efficacy of bleeding, still he advises the trial of the ordinary remedies—ice, opium, effervescing drinks, baths, change of air, exercise or rest, choice of diet, and all

the other known hygienic and therapeutic agents; these in many cases suffices, but in extreme instances no remedy is so powerful as bleeding.

W. C. GRIGG, M.D.

BIZZOZERO ON A CASE OF DISSECTING PHLEGMONOUS PERIVAGINITIS.—At a recent meeting of the Turin Medical and Surgical Society (*Gazzetta delle Cliniche*, February 2, 1875) Professor Bizzozero related a case of dissecting phlegmonous perivaginitis, accompanied with prolapse of the vagina and of the vaginal portion of the cervix uteri, and ending in recovery.

The patient was a woman, aged thirty-eight, of fairly good physical constitution: she had had sexual intercourse rarely, and had never suffered from blennorrhagia. On her admission into hospital under the care of Professor Timermans (in February, 1869), her most prominent symptoms were: temperature, 104° Fahr.; pulse, 96; headache; symptoms of bronchial catarrh; ardent thirst; loss of appetite; constipation; and pain in the lower part of the abdomen. These symptoms lasted several days, and to them was added difficulty in micturition, which rendered the use of the catheter necessary. On the tenth day after admission, she had ardor urinæ and tenesmus; there were superficial abrasions on the labia majora and minora, extending to the orifice of the vulva; the contact of the urine with these parts produced very acute pain. On the twelfth day, while she was being examined, there escaped from the vaginal cavity a body which, on examination, Dr. Bizzozero recognised as the vagina itself with the vaginal portion of the cervix uteri. It had the form of a sac (the vagina), the fundus of which was thickened (vaginal portion of the uterus) and perforated (external os uteri). Towards the outlet, the walls were thin; the outline of the sac was rather irregular. The vaginal portion of the neck of the uterus was separated from the vagina for about half its circumference. The external surface was rugose, rather soft and spongy; the inner surface was smoother and more compact, though somewhat irregular. On microscopic examination, it was found that the connective stroma of the part was in good preservation. The vessels were partly empty, partly distended with red matter derived from the decomposition of blood, which presented masses of vibriones and bacteria. The latter were also found in great abundance in the loose perivaginal connective tissue, more scantily in that which formed the stroma of the vagina. All trace of vaginal epithelium had disappeared. In the mucous membrane of the vaginal portion of the neck of the uterus, there could still be discerned the large vessels running perpendicularly to the surface of the membrane, as described by Henle.

This elimination of the parts was followed by extensive perimetritis. Gradually, however, the patient's condition improved: the discharge diminished and became less offensive; and, a month after admission, the patient left the hospital. Two months later, the ostium vaginæ was found to be normal; there was little vaginal discharge. The finger reached the cervix uteri with much difficulty, after passing through a hard resistant fibrous ring like a hymen. With the speculum, this ring could be seen to lie before the cervix. No mucous or purulent discharge was observed. An attempt was made to procure dilatation by the use of prepared sponge; it promised at first a favourable result, but

had to be desisted from on account of an attack of acute arthritis.

Dr. Bizzozero says that there are only three recorded cases of this malady; two, by Marconnet of Moscow, ending in recovery; and one, by Menkenitsch of Tiflis, which terminated fatally.

A. HENRY, M.D.

PSYCHOLOGY.

THOMPSON ON GENERAL PARALYSIS OF THE INSANE.—Dr. George Thompson contributes to the *Journal of Mental Science* (January, 1875) a paper on the Physiology of General Paralysis of the Insane. He refers to certain sphygmographic tracings of paralytics made by him at the West Riding Asylum, and depicted in the first volume of the Asylum Reports. On these chiefly he founds his theory of general paralysis. He is of opinion that the organic change which exists in the very early stages of general paralysis consists of a diminished calibre of the vessels, which is of the nature of a persistent spasm; also that this spasm, persistent if left untreated, is, if recognised early, amenable to remedial means, and that the lesions found after death are not the cause, but the result, of early organic changes that need be only of temporary duration. He found that the tracing of the pulse at the wrist of paralytics, when untreated, is precisely similar to that found in a person in good health, who had been exposed to a cold bath for the space of one minute. The vessels of the retina and optic discs are thin and attenuated, and the discs themselves void of their natural pink tint. General paralytics, he remarks, are more frequently the subjects of cerebral syncope than persons labouring under any other disease of the brain; and in the early stages of general paralysis, the temperature of the body is lower than in health, and the skin of the patients is in the condition known as cutis anserina, resembling that seen in the cold stage of ague, in cholera, or in rigor. He contends that, by the administration of remedies known to be antagonistic to spasmodic action, the pulse-tracing may be brought back to a healthy form, and the retina and temperature likewise restored to the normal state. Dr. Thompson bases his theory of persistent spasm on the uniform appearance obtained in the pulse-tracing in the early stages of the disease. It is such as is found when the individual is exposed to such means as are known to produce spasm of involuntary muscular fibre. These are the application of cold to the surface, the administration of ergot, atropia, bromide of potassium, and lead. The condition of general paralytics is one, as a rule, of arterial contraction, but occasionally an hyperæmic condition is found. The mischief lies in a nutshell, which is vascular supersensitiveness. A patient whose pulse usually indicated vascular spasm, after drinking half-a-pint of asylum beer, exhibited a tracing such as is usually found in pyrexia, and his temperature rose from 97° to 98°. The opposite condition is often shown by attacks of cerebral syncope. In confirmation of the theory that the lesions seen after death are the results and not the cause of early organic changes, Dr. Thompson quotes the words of Dr. Long Fox, who says that 'variations in the normal blood-supply of the brain will, if long continued or frequently repeated, induce structural lesion that can be recognised after

death; each of them may be the starting-point of phenomena of a severe character, and if the duration of the attack be not protracted, will have no *post mortem* appearance' (*Pathological Anatomy of the Nervous Centres*). The cause of the arterial spasm, the blanching of the nervous system, is, according to Dr. Thompson, a heightened susceptibility on the part of the vaso-motor system to such influences as are likely to affect it. This heightened susceptibility takes the form of alternate overdilatation and overcontraction—of overstimulation followed by a reaction. But the reaction becomes a persistent condition. The paralysis of the sympathetic, causing dilatation, becomes an irritation, causing persistent contraction; this persistent contraction prevents the rapid flow of blood essential to the nutrition of the brain, and the phenomena known as brain-wasting are the result. He also points to the fact, as stated by Dr. Wilkie Burman in the third volume of the *West Riding Asylum Reports*, that the average weight of the heart is considerably greater in general paralysis, and in chronic and consecutive dementia, than in other forms of insanity, the supposition being that hypertrophy has been set up by the absence of dilatability of the vessels. For all this the Calabar bean is the best remedy at present known, but it must not be given during excitement, as has been done by some physicians.

[Dr. Milner Fothergill, in a paper on 'The Heart-Sounds in General Paralysis' (*West Riding Asylum Reports*, vol. iii.), speaks of the accentuated second sound of the heart in this disease, and attributes it to cerebral hyperæmia, a stage of hyperæmia with mental exaltation preceding one of atrophy, or brain-cirrhosis, where obliteration of the function of the brain co-exists. And in the fourth volume of the same reports he says, 'conditions of brain-anæmia are induced by the use of agents which depress and slow the heart's action, e.g., the Calabar bean, in states of cerebral hypervascularity, and for this purpose Dr. Crichton Browne has used the physostigma to control the wild outbreaks of general paralysis.'—*Rep.*]

G. FIELDING BLANDFORD, M.D.

DUBOUX ON RHEUMATISMAL INSANITY.—In a case of rheumatismal insanity reported in the *Bulletin Médical de la Suisse Romande* for Dec., 1874, the patient was suffering from acute articular rheumatism with endocarditis, and presented all the characteristics of rheumatismal madness; combination and alternations of various forms of mental alienation, mania, melancholia, dementia, with a marked predominance of notions of persecution and hallucinations of sight and hearing of a generally distressing character. For several days there was marked stammering, a symptom which has before been noted in some cases of this kind. M. Duboux brings into notice the commonness of melancholic mania in rheumatismal insanity; in the great majority of cases, coinciding with cardiac disease. On the other hand, it is interesting to note how amongst lunatics suffering from the persecution-delirium, generally with persistent hallucination, we find individuals labouring under heart-disease, especially amongst old men.

FOTHERGILL ON DIPSOMANIA IN WOMEN.—In the course of an almost exhaustive paper on cerebral anæmia in the *West Riding Lunatic Asylum Report* for 1874, Dr. Milner Fothergill states that he believes

that a chronic state of anæmia of the brain is the most common cause of dipsomania, especially in women. Alcohol, by increasing the force of the pulse and dilating the small arteries, removes for the time the feeling of weakness and utter wretchedness which is one of the most prominent and distressing symptoms in all cases of defective cerebral nutrition. Dr. Fothergill has treated successfully cases of dipsomania by measures having for their object the filling of the vessels of the brain. The means employed for this purpose must, of course, depend on the cause of the anæmia, whether it is part of a general state or due to cardiac weakness or to valvular disease, etc.: iron, digitalis, strychnia and belladonna are the most useful remedies, and, in bad cases, opium in frequently repeated small doses is of great service; it not only allays the restlessness and irritability which are generally present, but, by promoting dilatation of the small arteries of the brain, directly favours the nutrition of that organ.

J. W. LANGMORE, M.D.

OPHTHALMOLOGY AND OTOLOGY.

MAGNUS ON THE USE OF CALABAR BEAN IN IMPAIRMENT OF ACCOMMODATION.—Dr. Hugo Magnus (*Klinische Monatsblätter für Augenheilkunde*, August–September, 1874) remarks that the influence which is possessed by solutions of Calabar bean over the action of the ciliary muscles is universally recognised, and the extreme value of this influence in cases where the accommodation is suspended by paresis or paralysis of the ciliary muscle has been thoroughly well established. In this paper, it is the object of Dr. Magnus to show that the agent in question is powerful for good in many instances in which the action of the ciliary muscle is feeble and unequal to its task; in many cases, in fact, where we have to deal with symptoms of asthenopia. It has been shown, especially by Donders, that the asthenopia which is associated with hypermetropia may for a time be relieved by a single dose of Calabar solution; but it is the object of Dr. Magnus to show that by the employment of the solution for some days or even weeks the recurrence of asthenopia may be prevented altogether. In support of these views, the paper contains a brief account of ten cases which had been treated by instillation. The strength of the solution employed was one part of the extract to sixty parts of water, and five or ten drops were dropped in every night and morning, for a week at a time.

Case 1.—M. K., a girl aged ten, suffered from hypermetropia and amblyopia. Without the use of atropine, and with +60 glass, her vision = $\frac{16}{50}$. Asthenopia was present to such an extent that she was unable to work longer than an hour at a time. The treatment was commenced June 11, 1872, and at the end of three months she was able to do fine needlework without any difficulty, and without any return of her former trouble. How long this improvement in her condition remained, is not known.

Case 2.—S. A., aged twenty-two, a medical student, having vision with the right eye = $\frac{20}{20}$, with the left eye = $\frac{20}{40}$, was in the habit of wearing +40 glasses. The near point of the left eye for $1\frac{1}{2}$ Snellen's types was at seven inches, and he was unable

to accommodate with this eye for more than a minute. Distressing asthenopia occurred first in one eye and then in the other. This was soon relieved by the use of the drops, and the near point of the left eye was replaced at five inches. Before the cure was complete, there was a relapse of the asthenopia in this case.

Case 3.—H. G., aged fifteen, a school-girl, had hypermetropia and amblyopia. The vision of each eye was diminished one half; without atropine, +15 was the most useful glass; there was well-marked asthenopia. The treatment was commenced September 27, 1872, and at the end of a month the symptoms were so far relieved that she could work during the whole evening without trouble. At the termination of another month from the time the treatment was discontinued, there had been no relapse; but her acuteness of vision had not improved.

Case 4.—F. S., aged twenty-two, a clockmaker; his vision with either eye was = 1. Without atropine, +30 was his best glass, and this he was wearing. He had asthenopia. The improvement in this case was limited and not permanent, so that he was ordered to wear +24 glasses, as well as to persevere with the treatment.

Case 5.—L. O., aged thirteen, had hypermetropia and amblyopia; vision = $\frac{20}{30}$, with +30 glass. There was asthenopia, and this disappeared completely, so that the boy could do any kind of work. Six months later there came a slight relapse, but at the termination of the year the cure seemed to be complete and permanent.

Case 6.—P. K., a boy aged eleven, had vision with either eye = 1 with +50 glass. He had asthenopia, which was speedily relieved, so that he could work the whole day long. At the end of eighteen months there was a slight relapse, which yielded to similar treatment in a week.

Case 7.—A. M., a governess, aged eighteen; her vision was = 1 without atropine, and with +24 glass. She had asthenopia. This was soon relieved, but, as it recurred at the end of three months' time, the patient was ordered to wear convex glasses.

Case 8.—W. E., a young woman, aged twenty-two, had vision = 1 with +30 glass. There was extreme asthenopia. This yielded in some measure, but was never completely relieved.

Case 9.—S. R., aged eleven, had hypermetropia and amblyopia. Vision was = $\frac{15}{70}$, with extreme asthenopia. These symptoms were entirely relieved; but, as the boy did not continue his visits, the ultimate result of the treatment is unknown.

Case 10.—E. R., aged six, a girl, had hypermetropia and asthenopia, but her vision could not well be estimated. The hypermetropia was ascertained with the ophthalmoscope, and she was unable to read her school-books. The cure is reported to have been complete.

From the narrative of these ten cases, Dr. Magnus thinks he is able to prove that at least the ordinary symptoms of asthenopia may be relieved by the use of Calabar bean in solution, inasmuch as in Cases 1, 3, 5, 6, and 10, no glasses were necessary, and the simple instillation was sufficient to restore the functions of the ciliary muscle, and to replace the accommodation within its normal range, with no inconvenience to the patient whatsoever. Against this view, it may be said that in Cases 5 and 6 there was a recurrence of the asthenopia; but such relapses, he believes, may be prevented by perseverance with

the treatment. His observations, so far as they go, tend rather to show that an absolute and abiding cure is to be hoped for in patients of a certain age only; for instance, in Cases 2, 4, 7, and 8, the age was greater than fifteen years, and in all of these the improvement was limited, and the use of the drops had to be supplemented by the employment of convex glasses.

Dr. Magnus thinks that his plan of treatment is well suited to all cases of asthenopia in children; and he believes it will be found of great value in all cases which display a tendency to strabismus, inasmuch as, by increasing the amount of accommodation without at the same time straining the convergence, the conditions which tend to the development of a squint are not present in so high a degree.

The continued employment of the curative agent appears to have been attended with no difficulties. The conjunctiva in no way resented the frequent application of the drops, and the patients never complained of pain, the little girl, Case 10, excepted; but her complaints can hardly be said to afford any true criterion, and the author thinks that he can assert this much, if no more, that his observations go a great way to show that in Calabar bean we possess a curative agent whose influence is greater and wider than has been supposed. BOWATER J. VERNON.

MISCELLANY.

MDLLE. LEHMUS, of Furth, Bavaria, has just received from the Faculty of Medicine of the Zurich University the diploma of doctor in medicine, surgery, and obstetrics.

FACT *versus* FICTION.—The authorities of the Nottingham Free Library have written to the Vice-Chancellor of Cambridge to state that, since the institution of local examinations, the issue of works of fiction has declined and given place to the reading of scientific books.

A ROYAL SAVANT.—Don Pedro, Emperor of Brazil, has just been named corresponding member of the French Academy of Sciences, in the section of navigation and geography. He is the only sovereign who has been enrolled amongst the active members of this illustrious scientific body since its foundation in 1866.

IT will be remembered that M. Pajot, who had the intention of giving up his chair of obstetrics at the École de Médecine, relinquished his purpose on the earnest representations of the students. He commenced his sessional course of lectures on the 16th inst., when the students took occasion to give him an ovation of the most enthusiastic and gratifying character.

THE ACTION OF NICOTINE.—In the report of the West Riding Lunatic Asylum, Dr. Benham has a paper on this subject. He administered nicotine to man and the lower animals, finding that it killed the latter, not by paralysing the heart, but by stopping the respiration. Indeed, he says, it quickens and strengthens the heart's action, and recommends its use for that purpose. He found that nicotine contracted the pupils, but its other effects on man were most variable.

THE Ateneo Propagador de las Ciencias Naturales offers a prize of 500 pesetas (about twenty guineas) for the best original memoir on the mineralogy, botany, or zoology of Spain. Any person, whether a member of the society or not, can compete for this prize. Memoirs must be sent in to the secretary of the society before September 30, 1875. A printed paper with further particulars may be procured from the secretary, whose address is Calle Ancha de San Bernardo, 15, Madrid.

SIGNOR PERUZZI, the Syndic of Florence, has given orders that 800 out of the 1,000 dogs annually found straying in that city, which have for some years past been placed at the disposal of Professor Schiff, shall be killed by the police. They are to be asphyxiated instantaneously in a cell constructed for the purpose, and filled with carbonic acid gas, which is being prepared in the precincts of the public slaughter-house.

THE ORIGIN OF NERVE-FORCE.—In a discussion between Herbert Spencer and Professor Clerk Maxwell, on this subject, given in the *Quarterly Journal of Science*, January, 1875, the former maintains that when the nerve impulse is expended, the nerves fall in temperature and are reinforced by instantly absorbing heat from the adjacent tissues. To this Professor Maxwell replies, that 'those who believe in thermo-dynamics cannot admit that any purely material system can convert heat into work when the system and its whole environment are, at the commencement of the operation, at the same temperature. Heat can do work only when it passes from a hotter body to a colder.'

THE MARRIAGE OF COUSINS.—The March number of the *Deaf and Dumb Magazine* contains an article on the 'Marriage of Cousins,' by the Rev. S. Smith, the editor, which is nearly identical with the remarks of that gentleman published in the *Times* of the 19th ultimo. In his paper Mr. Smith asserts—and adduces many painful proofs of his assertion—that such marriages are the fertile source of congenital deaf-mutism and other physical defects and disqualifications. He insists upon the necessity of such evil consequences being universally made known, in order that their entailment may be avoided. This subject is one which well deserves the serious attention of the philanthropist as well as the social and political economist, and, indeed, of all classes of the community.

THE PREVAILING HOUR OF DEATH.—Dr. Lawson has recently published some curious observations regarding the time of the day when the greatest and least number of deaths occur. He finds, from the study of the statistics of several hospitals, asylums, and other institutions, that deaths from chronic diseases are most numerous between the hours of eight and ten in the morning, and fewest between like hours in the evening. Acute deaths from continued fevers and pneumonia take place in the greatest ratio in the early morning, when the powers of life are at their lowest, or in the afternoon, when acute disease is most active. The occurrence of these definite daily variations in the hourly death-rate is shown, in the case of chronic diseases, to be dependent on recurring variations in the energies of organic life; and in the case of acute diseases, the cause is ascribed either to the existence of a well-marked daily extreme of bodily depression, or a daily maximum of intensity of acute disease.

THE DAWN OF LIFE.—Professor Williamson, in a lecture on the 'Dawn of Life,' delivered at Glasgow on the 2nd inst., referred to the experiments of Dr. Bastian, and remarked that one positive experiment showing that animal life did not result after the application of heat, and the careful exclusion of the atmosphere, was of more value than a hundred experiments giving an opposite result. He mentioned an interesting fact derived from the recent experiments of two Liverpool gentlemen who had sedulously watched by a powerful microscope the habits of the infusoria. They subjected the water in which they were contained to 250° of heat, and found that, while the mature animalcules were destroyed, the germs were not, but a heat of 300° destroyed the germs also. Professor Williamson believed that if these experiments were verified, the question of spontaneous generation might be considered to be practically settled. The deepest reaches of the microscope had shown that life was produced from life—that this one universal law prevailed in the organic world just as the farthest reaches of the telescope had shown that gravitation prevailed in the remotest systems in space.

CINCHONA OR CHINCHONA.—Mr. C. R. Markham, in a lately-published *Memoir of the Lady Ana de Osoria, Countess of Chinchon and Vice-Queen of Peru*, wishes to prove that the name cinchona, applied to Peruvian bark, should be altered to chinchona. The knowledge of the efficacy of Peruvian bark was undoubtedly brought to Europe in the year 1640 by the Countess of Chinchon, on her return to Spain with her husband at the expiration of his term of office as Viceroy of Peru. This lady, during her residence there, was attacked by tertian fever, and cured by the use of Peruvian bark. On the return of the count and countess to the castle of Chinchon, the countess, who had brought with her a supply of the precious bark which had effected such a wonderful cure upon herself 'administered Peruvian bark to the sufferers from tertian agues on her lord's estates in the fertile but unhealthy *vegas* of the Tagus, the Jarama, and the Tajuña. She thus spread blessings around her, and her good deeds are even now remembered by the people of Chinchon and Colmenar in local traditions' (p. 45 of the memoir). Though from time to time during the succeeding hundred years powders of the Peruvian bark were imported into Europe, no scientific account of the tree was published until 1740, in which year De la Condamine published a description and figure in the *Memoirs of the Academy of Paris* for 1738, under the generic name of *Quinquina*. This communication contained also an account of the history of the drug, wherein the name of the Countess of Chinchon was duly mentioned and properly spelt, and on the information obtained from it and quoted in acknowledgment, Linnæus, in the second edition of his *Genera Plantarum*, published at Leyden in the year 1742, founded his genus *Cinchona* in honour of the Countess of Chinchon. The word cinchona, however, has now become settled by the usage of upwards of a hundred and thirty years, and sufficiently recalls the name of the enlightened and benevolent lady to whom Europe owes the introduction of this most useful therapeutic agent.

SCHOOL IMPROVEMENTS.—In all cases where class-rooms are lighted by gas during day-time, the Inspectors of Schools recommend the principals and the committees to have greater regard for the health and comfort of the pupils, by availing themselves of that useful modern invention, the Daylight Reflectors, of which for many years Mr. Chappuis has been the successful patentee and manufacturer, at 69 Fleet Street, London. Not only will the rooms be more healthy, but a considerable saving will be effected. The cost of the Reflectors is moderate, and their durability will extend over several years.—[ADVT.]

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The London Medical Record.

WEDNESDAY, MARCH 31, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

WEIR MITCHELL AND CHARCOT ON POST-PARALYTIC CHOREA.

It is very well known that choreal movements, in some cases of hemichorea, are replaced by hemiplegia; but it is not so well known that choreoid movements sometimes follow hemiplegia. There are to be found, in what we may call the hemiplegic region, all varieties of mobile disorders. There are curious mixtures of palsy and spasm, and the limb which the patient cannot use may often twist about to his great discomfort. For these over-movements thus localised, the reporter has suggested the general name of Hemikineses. In close relationship with hemiplegia is hemispasm—convulsion of one side. Not only does hemiplegia (temporary) follow this variety of hemikinesis, but not unfrequently convulsion attacks a patient partially hemiplegic, and begins in and affects first and most the parts paralysed. In adult patients, hemiplegic from infancy, there are frequently over-movements of the paralysed arm, and, in less degree, of the leg; but the reporter has not seen movements like ordinary chorea in such persons. The movements lack the punctuation of chorea; they are not a succession of different movements, but a gliding of movements into one another. In some of these cases the patient is subject to convulsions as well, which, however, rarely begin deliberately in the side of the body most affected by the palsy and the over movement. In some cases of tumour of the brain, as Todd and Tuckwell have pointed out, chorea-like movements result. Again, in some cases of 'coarse disease,' syphilitic, for example, of the surface of a cerebral hemisphere which has led to epileptic hemiplegia, there are, during recovery from that hemiplegia, various kinds of slight movements; the arm will often jerk fitfully, the thumb and index finger will move much as they do in paralysis agitans. In some cases the limb is still when the patient is not trying to move it; and yet, when he tries, there is tremor indistinguishable from that of disseminated sclerosis.

One advantage likely to result from the comparative study of the different kinds of movements of the hemiplegic region in relation to loss of movement in that region (hemiplegic) is, that the needful empirical study of cases will be controlled by scientific method.

In an exceedingly valuable contribution to the *American Journal of the Medical Sciences*, October, 1874, Dr. Weir Mitchell calls attention to a disorder which he names postparalytic chorea. The paper is a commentary on three chief propositions: 1. That, in adults who have had hemiplegia and have recovered power, there is often found to be a choreal disorder in the members affected by the paralysis; 2. That, the

younger the patient when paralysed, the more probable is the occurrence of choreal development; 3. That probably some of the congenital choreoid disturbances are in some way related to intra-uterine palsies.

Postparalytic chorea is rare; it is not found in cases of hemiplegia where much palsy remains; it does not come on suddenly, but grows slowly, increasing as the paralytic state fades out. It does not occur in connection with rigidity; it may exist with any degree of regained power, from the least up to the most complete; it occurs on either side; it is worse in the region of complicated motions.

The occurrence of postparalytic chorea is so much more frequent after hemiplegia in the young, that very few cases of hemiplegia in young children fail to leave behind them more or less choreal inco-ordination. It is probable that choreal disturbance does not follow spinal infantile paralysis.

Several cases are quoted by Dr. Mitchell, one of which is completed by a necropsy. In that instance there were two attacks of hemiplegia, the first on the left, and another, more than a year after, on the right. The latter was followed by choreoid movements, which, it is implied, were in both legs and one hand, though it is not explicitly stated. At the necropsy some months after the latter attack, a spot of pigmented softening, probably old, was found in the right crus cerebri, a second in the left corpus striatum, and a third, of the size of a pigeon's egg, on the under surface of the middle lobe on the left side.

Dr. Mitchell also speaks of other postparalytic disorders of movement, which cannot be called choreal. One patient, after right hemiplegia, incessantly rubbed the right leg with the right hand, so as even to wear out his pantaloons.

In one of his recent masterly lectures (*Le Progrès Médical*), Charcot relates three cases of the post-hemiplegic chorea of Dr. Weir Mitchell. The first patient, M. R., aged fifty-one, had an apoplectic attack ten years ago, with loss of consciousness and vomiting; this was followed by complete right hemiplegia and ataxy of articulation. At the end of six months she was able to get about, and, as power of movement in the right leg returned, the right arm became affected with choreiform tremor, which has remained ever since. At the present time she has general right hemianæsthesia, exactly like that of hysteria. General sensibility is so diminished, that a large pin can be thrust deeply into the face, trunk, and limbs on the right side, without causing any sign of pain. Acuteness of vision is diminished in the right eye; smell is altogether lost on that side; a watch is heard dimly with the right ear; taste is abolished on the right side of the tongue. There are no motor troubles in the face. The right arm and leg are neither atrophied, contracted, nor in any way deformed. While they are at rest, there is scarcely any motor disorder; but on voluntary movement they present a choreiform agitation like that of insular sclerosis, and somewhat similar to the tremor which occurs in ordinary hemiplegia when the lateral columns of the cord have degenerated and there is not much contraction of the limbs. The movements have no resemblance to those of locomotor ataxy, nor does the fact of the patient's keeping the limbs in view exert any influence over them. On the other hand, they differ from the tremor of sclerosis and that of hemiplegia in existing in the absence of voluntary movement. He applies, therefore, the name chorea to these movements, although it is intended thereby to indicate a similarity only,

and by no means a nosographical identity with ordinary chorea.

Posthemiplegic hemichorea occurs not only after cerebral hæmorrhage and softening, as seen in adults, but also after those changes which occur in infants, and are known as partial atrophy of brain (Cotard). There is, as a rule, in these cases, incurable hemiplegia with contraction; but in rare instances the hemiplegia is from the first supplanted by a hemichorea, which lasts for the rest of the patient's life. Charcot reports two such cases, in which, after hemiplegia in infancy, hemichorea without anæsthesia persists to the present time, when the patients are eighteen and twenty-nine years old respectively.

The condition is so uncommon that Charcot has seen only five or six cases in the last twelve years.

Charcot does not at present offer a definite explanation, but he thinks it probable that the substitution of choreiform movement for flaccidity or contraction depends on a difference in the seat of the cerebral lesion. He founds his opinion chiefly on the fact that the hemichorea is usually accompanied by hemianæsthesia. He considers it established that hemianæsthesia, extending to the special senses, is due to a lesion of (1) The posterior extremity of the optic thalamus; (2) The most posterior part of the caudate nucleus; it is expressly noted that the anterior two-thirds or three-quarters of these nuclei are wholly unaffected; (3) The most posterior part of the base of the corona radiata. He has found ochrey cicatrices in this situation in three cases of unilateral hemianæsthesia; but he admits on the other hand that he has seen very many cases in which these nuclei were injured in various parts without there being the least trace of choreiform movements. He does not, therefore, suppose that these organs are necessarily involved, but rather, although he puts it forward as a mere hypothesis, that there are, among the thin fibres of the corona which convey sensory impressions, fasciculi endowed with special motor properties, the alteration of which determines hemichorea.

In connection with posthemiplegic hemichorea, Charcot describes an inverse affection, which he calls prehemiplegic hemichorea, in which choreiform movements, coming on suddenly after an apoplectic seizure, shortly give place to more or less complete hemiplegia. Hemichorea of this nature is always accompanied by hemianæsthesia. Charcot has seen but three cases of this kind, and in only one has he had a necropsy. In that case there was a blood-clot of the size of a small nut, which distended the posterior part of the optic thalamus.

Hemichorea, accompanied or not by hemianæsthesia, may be produced slowly and progressively without being necessarily preceded or followed by hemiplegia, in consequence of the growth of certain neoplasms in the substance of the hemisphere. In the case of a woman still living, aged sixty, there have been vague pains in the right arm for fifteen years. Six years ago she had epileptiform attacks, and about the same time a choreiform movement began in the right arm. The movement is permanent, increased by voluntary exertion, and resembles chorea more than either paralysis agitans or senile tremor. During the last year this patient has had total right hemianæsthesia, with involvement of the special senses. J. HUGHLINGS JACKSON, M.D.

DWIGHT ON COLOURING AGENTS IN HISTOLOGY.

Dr. Thomas Dwight, jun. (*Boston Medical Journal*) observes that, were the object of colouring a microscopical preparation merely to render the different elements more distinct, or even were it to enable us to form some judgment as to the degree of vitality of certain parts of cells and fibres, we should not need to chronicle the introduction of new agents: but, as the real desideratum is something that by its action will enable us to determine the nature of such bodies as it does or does not colour, we welcome every addition to our slight knowledge in this respect.

Of all forms of tissue the connective is the most perplexing, owing to its universal distribution, and to its intimate relations with other tissues, from which it frequently can hardly be distinguished, if at all.

Ranvier (*Archives de Physiologie*, no. 6, 1874) asserts that he has found a colouring matter called purpurine, which will be of great use in this respect. It is particularly applicable to the study of the central nervous system, from its property of colouring the nuclei of connective tissue cells and of leaving nervous elements unstained. To obtain this effect, the cord should be hardened in bichromate of ammonia. The nuclei of cartilage-cells, corneal corpuscles, and fixed cells of connective tissue in general are admirably shown. The substance is an extract of madder, and the fluid is made by adding it to a boiling solution of one part of alum and two hundred of water until some of the extract remains undissolved. The fluid is filtered while still hot into enough alcohol to form one quarter of the mixture. Only a small amount should be prepared at a time, as precipitation occurs in about a month, after which the staining properties are less active. The colour is a fine orange-red. From twenty-four to forty-eight hours are required for staining; most preparations are then mounted in glycerine, but sections of the cord are freed from water and rendered transparent *secundum artem*, and mounted in a solution of Canada balsam in chloroform.

Alferow (*Archives de Physiologie*, nos. 4 and 5, 1874) advocates the use of the lactate of silver instead of the nitrate. He recommends a solution of one part in eight hundred of distilled water, with the addition of a few drops of a concentrated solution of lactic acid. The presence of the free acid renders precipitation less easy, and the only formations that occur are the chloride and albuminate of silver. The formation of several disturbing precipitates is thus avoided. Alferow asserts that the pictures are much clearer than those obtained by the nitrate, and that the lactate, if applied to the mesentery of the living frog, interferes less with the circulation. We may mention incidentally that this author denies the existence of stomata in blood-vessels and serous membranes, and states that solid particles traverse epithelial layers between the cells, which move to give them passage by some mechanism not yet understood.

Gerlach, in an excellent monograph on the relations of nerve and voluntary muscular fibre in vertebrates, gives directions for the use of silver, osmic acid, and gold. It is to be remembered that his directions apply only to this special branch of study. In speaking of silver he dwells on the fact (which is more or less true of all colouring matters) that its action is

very different on living and on dead tissues. With muscles this is particularly important, as the acid reaction due to contraction interferes with the effect of the silver. He uses silver as follows: a little muscle is picked to pieces in a half of one per cent. solution of salt in water, and allowed to remain in this fluid eight or ten minutes, after which it is washed in distilled water, and transferred to the tenth of one per cent. solution of the nitrate of silver, to remain till it assumes a dull white colour, which usually appears in about half a minute. The muscle is then again washed, and exposed in a moist chamber to direct sunlight, if possible, for five or ten minutes, or to diffused light for four times as long. It is then treated for three or four minutes with a mixture of one part of hydrochloric acid and one thousand of water. Silver, though having for the most part a purely superficial action, shows in the substance of the muscular fibre itself a series of white markings, which Gerlach is inclined to consider lymph-spaces.

Osmic acid has a peculiar affinity for the white substance of the nerve-fibre; no coagulation takes place, but the whole fibre appears as a black band. For tracing the general distribution of nerve-fibres, this agent is very serviceable. There are several methods of using it, but the following is the simplest and the most generally applicable. Put the specimen for from four to eight minutes in a half of one per cent. solution of the acid, then wash it and mount it in a saturated solution of acetate of potash. Glycerine is not to be recommended.

For the finer nervous filaments, gold is superior to anything else. Gerlach, in place of the simple salt, uses the chloride of gold and potassium dissolved in ten thousand parts of water, with one part of chemically pure hydrochloric acid added to the solution. It is important to know that the action on muscles is modified by the length of time after death, and by the state of the muscles before death. The best results are obtained with muscle that is not perfectly fresh, but which is used before the development of cadaveric rigidity. For the frog the best time is from six to nine hours after death; in warm-blooded animals the examination must be made sooner. It seems also desirable that just before death the muscle should have been in a state of tetanic contraction. In the frog this is brought about by killing the animal by repeated blows on the head. Beale's more humane method of wrapping the frog tightly in a towel and dashing it to the ground would doubtless be equally advantageous. The extremity from which the muscle is to be taken should be separated at once. The specimen is kept ten or twelve hours in the gold solution protected from the light. It is then washed in slightly acidulated water and mounted in glycerine, to which a little hydrochloric acid has been added.

Schiefferdecker (*Archiv für Mikroskopische Anatomie*, Band x. Heft 4, 1874) describes some very beautiful sections that he had made with the cord of a dog and stained with chloride of gold or chloride of palladium. The former of these is particularly good for showing the net-work of minute fibres, while the latter shows the course of the larger ones very finely. The fresh cord, stripped of its membranes, was hardened by being kept for a month in Müller's fluid, and then for twenty-four hours in alcohol. The sections were washed for a day or two in distilled water. The solution of palladium was of the strength of one to ten thousand; that of gold,

sometimes the same, sometimes twice as strong. The specimen was kept in the palladium till it became of a grey colour, which occurred in from three to five hours; it was then washed in distilled water. Those specimens treated with gold were kept in till they became of a light violet, which took place in from one to three hours; they were then kept for a day in acidulated water. The specimens of both kinds were finally mounted in Canada balsam, after the regular course of alcohol and oil of cloves.

Ranvier (*Archives de Physiologie*, no. 6, 1874) recommends weak alcohol as a substitute for chromic acid, Müller's fluid, and other hardening agents. He adds twice its volume of water to alcohol of 36° of Cartier's scale, that is, of about ninety per cent. This fluid renders the cells rather hard, the nuclei very plain, and at the same time dissolves the intercellular substance; hence it is very useful in the study of individual elements. It further has the merit of not interfering with the action of colouring agents.

JOHNSTON'S REPORT OF THE ROTUNDA LYING-IN HOSPITAL.

The following is an abstract of Dr. George Johnston's sixth clinical report of the Rotunda Lying-in Hospital for the year ending 1874.*

The author's only object is to give an accurate and faithful detail of the occurrences taking place in a large maternity, in order to arrive at a fair conclusion whether such an institution is as safe, if not safer, than a private dwelling. On comparing last-year's mortality with former years, it is found to be considerably less, the number confined being greater.

		Deliveries.	Deaths from all Causes.	
In 1869	out of	1,159	there were	25
" 1870	"	1,087	"	27
" 1871	"	1,161	"	33
" 1872	"	1,193	"	20
" 1873	"	1,191	"	32
" 1874	"	1,236	"	15

This great diminution is the more remarkable as zymotic diseases of all kinds were very prevalent outside the hospital; and, besides this, many patients were admitted labouring under acute complaints or became affected shortly after admission. Sixty were suffering from great mental distress (forty-seven seduced, seven deserted by husbands, three ill-treated, three lost their husbands shortly after coming in); twenty were extremely delicate; forty-four had acute bronchitis; three jaundice; one gastritis; five convulsions; two epilepsy; five mania, one terminating in apoplexy; two phlegmasia; one phlebitis; thirteen peritonitis; one pyæmia; four syphilis; one had a lacerated wound over the sacrum extending to the right labium; two had fever; one typhus; one typhoid; two diarrhoea; two erysipelas; two rubeola; fifteen scarlatina; five rheumatism.

The low death-rate is viewed as mainly owing to strict cleanliness, a constant current of air permeating the wards and corridors, and preventing labour from becoming protracted by early interference, besides saving the lives of many children thereby, and obviating the dangers arising from exhaustion and long-continued pressure on the soft parts.

* Read before the Dublin Obstetrical Society, January 9, 1875.

Of the 1,236 labours, 967 were purely natural ; in 40, labour continued beyond twenty-four hours.

The chief part of these cases were sent in by practitioners and midwives who had failed to deliver. In forty-five instances, the ovum was expelled before the sixth month. There were twenty-three cases of twin-births ; three presentations of the upper extremities, forty-five of the lower. The forceps were used with 138 patients, the perforator never ; version fourteen times. Seven cases of accidental hæmorrhage, and six of placenta prævia were admitted. There were twenty-five cases of *post partum* hæmorrhage (trivial) seven of retained placenta, thirteen of prolapse of funis. Chloroform was administered 104 times. There were fifteen deaths, or one in 82½ ; nine from diseases of a zymotic type, viz., three from scarlatina, three from peritonitis, one from pyæmia, one from typhus, and one from typhoid fever.

There are fourteen most carefully drawn up and instructive tables. Table 1 contains a monthly abstract of deliveries, casualties, and complications, modes of delivery in difficult cases, preternatural presentations, abortions, twins and unnatural labours. Table 2 shows the deaths, with date of delivery, of death, ward, bed, age, number of pregnancy, causes, and observations. In the case of death from complete placenta prævia, Barnes's dilator was introduced, and, when the os was sufficiently dilated, version was performed. The patient died an hour and a half after delivery. The necropsy showed laceration of the vagina and cervix. In the instance of death from sloughing, the patient was delicate on admission through early rupture of the membranes. Labour was retarded ; the forceps was applied when the os was only two-fifths dilated ; sloughing of the vagina and peritonitis supervened. There were only three cases of peritonitis. The forceps was applied when the os was two-fifths dilated, for early rupture of the membranes and separation of symphysis pubis with purulent deposit. Of the patients who died, twelve were primiparæ, four of whom were seduced ; one fretted very much, another was remarkably silent. Of the three multiparæ, one died of placenta prævia (eleventh pregnancy), one of typhoid, and the other of typhus.

Of the forty cases of labour exceeding twenty-four hours, thirty-four were primiparæ and six pluriparæ. All of the primiparous patients were delivered by forceps except one. In the multiparous cases the forceps was used three times, version in one case, and twice the natural efforts sufficed. Two mothers died (primiparæ) ; one was twenty-six hours in labour, the other thirty. Of the children, five of primiparæ and three of pluriparæ died. Out of forty-five cases of abortion, nine were in primiparæ, of which five were at the sixth week (one in a primipara), seven at the eighth week (one a primipara), eleven at the twelfth week (one a primipara), four at the sixteenth (one a primipara, from a fall), one at the fifth month from a fall, seventeen in the sixth month (five being primiparæ). In the primiparæ, all the children were putrid. Of premature births there were fifty-one instances ; thirty-one in the seventh month (eight primiparæ), twenty in the eighth month (ten primiparæ). It is rather remarkable that during the first five months abortions were very rare in primiparæ ; after that time the proportion gradually decreased, until by the eighth month they were equal. Out of the twenty-four cases of twins, eight were in primiparæ (one of whom died), sixteen in pluriparæ.

The forceps was applied in 138 instances, viz., in 105 primiparæ, in which latter number only three children were born dead, 102 being living ; of these three born dead two were delivered before the os was fully dilated, and were large children, over seven and a half pounds. The waters ruptured many hours previously, two of the mothers had contraction of the conjugate diameter. Five deaths occurred amongst the primiparous mothers ; one was a case of twins, in which death occurred from apoplexy ; one died from scarlatina, one from bronchitis, one of sloughing of vagina with peritonitis, and one from peritonitis.

Of the thirty-three pluriparæ, seven of the infants were still-born and four died shortly afterwards. Of the still-born children, one was a breech case, two had prolapse of the funis, one was a case of placenta prævia ; one where the forceps was used with the os two-fifths dilated, and the child was very large ; the waters had escaped six days. One case, where the waters had escaped twenty hours, the os was four-fifths dilated, the head was above the brim twenty-five hours, and one was a hydrocephalic child retained in the cavity of the pelvis.

The forceps was applied forty-two times before the os was fully dilated, thirty-four times in primiparæ, eight in pluriparæ. As the plan is a deviation from usual routine practice, a carefully prepared table is given (no. 9.) showing the exact conditions under which Dr. Johnston deemed the operation advisable. Deducting two cases, a married and a single woman, who were only eight and six hours respectively in labour, the mean was twenty-five hours. Thirty-four children were born living, and four died, two of each state, primiparæ and multiparæ. The cause of interference was in thirty-four cases, viz., twenty-nine primiparæ and five multiparæ, one for placenta prævia, and seven not given.

The author divides the os into five divisions ; assuming that a dilatation of four inches is the full normal extent to which the os can be expanded. A lithographed plate is given, showing on a full scale the relative proportion between the forceps and the degrees of dilatation. The width of the forceps-blade is reckoned at 18th of an inch. The forceps was applied in twenty-four instances, nineteen primiparæ and five pluriparæ, with an expansion of the os of only two-fifths ; twelve times (eleven primiparæ and one pluripara), with a dilatation of three fifths, and lastly in four primiparæ, with a dilatation of one-fifth. The state of the os in these married women is not given. The head was above the brim in six primiparæ and five multiparæ ; in the brim in fifteen primiparæ and two pluriparæ, and the cavity in thirteen primiparæ and one pluripara. One primipara died of pyæmia ; the os was two-fifths dilated when the forceps was applied ; the head was above the brim, the waters ruptured early, and she was twenty hours in labour. One pluripara was thirty hours in labour ; waters ruptured early ; the os was two-fifths dilated ; the head was in the brim ; she died of peritonitis.

The causes of interference were ; 1. (the most frequent) early rupture of the membranes and escape of the waters before the os was dilated, and the head pressing injuriously on the maternal soft parts ; of these there were thirty-four cases (twenty-nine primiparæ and five pluriparæ ; 2. Although the membranes were entire, the head came down and pressed upon the soft parts without the usual intervening bag of waters ; of this there were six instances—

four in primiparæ and two in pluriparæ; 3. prolapse of the funis; and 4. placenta prævia.

Craniotomy was not once performed. Version was performed fourteen times, all in primiparæ; in four for presentations of the upper extremities, of which two were for second of twins, and two for single cases; four times for placenta prævia, three complete (one of the mothers died from laceration of the cervix and vagina), and one partial; twice for accidental hæmorrhage; three for the second of twins (head presentations); once for prolapse of the funis. Chloroform was given ten times; all the mothers recovered with the above exception. In seven cases of accidental hæmorrhage, one was a primipara, six pluriparæ. One mother died of typhoid fever. Placenta prævia happened five times, all pluriparæ; all the children were born living, two died. One mother died from hæmorrhage.

Post partum hæmorrhage.—The author divides it into three classes: 1. Slight trickling, where external pressure is alone sufficient to arrest it, together with cold applications, and the pulse unaffected; 2. Where the injection of cold water into the uterus or vagina is necessary, with use of ergot, wine, perhaps an opiate, the pulse being little affected; 3. Great draining, with faintings, the pulse affected; requiring strong remedies. In Table 10, the cases are divided under these separate heads. There were 27 cases; 23 were confined naturally, 4 by forceps; 9 were primiparæ, 18 pluriparæ. All the children were born living, and the sexes were equal. Chloroform was given only 3 times; the duration of the second stage never exceeded five hours, and in 21 cases not two hours. The third stage was never over 22 minutes. In 14 cases the hæmorrhage yielded to cold and ergot; 10 required cold injections, 3 per-chloride of iron. All recovered. The forceps was used twice before the os was fully dilated. Out of these cases 6 of the mothers left the hospital on the sixth day; 5 on the seventh; 8 on the eighth; 5 on the ninth; 1 on the tenth; 1 on the eleventh (a case of jaundice); 1 on the nineteenth day (an epileptic). The character of the cases was not serious.

As the question of the shortness of the second stage conducing to *post partum hæmorrhage* is still *sub judice*, Dr. Johnston has given a most carefully drawn up table (no. 11) showing the number of cases where the second stage did not exceed one hour for each month, with the number of cases of *post partum hæmorrhage* which occurred in them. There were 684 cases with 14 instances of *post partum hæmorrhage*; 7 of the first degree, 5 of the second degree, and 2 of the third degree. The writer sums up by saying that in the great majority of cases *post partum hæmorrhage* depends upon want of proper manipulation, *i.e.*, keeping a constant steady pressure over the uterus, from the moment the child's head is being expelled from the vulva, until the expulsion of the placenta and the application of the binder, which should be so arranged as to secure the uterus from relaxing. By observing strictly this practice not only is the complication avoided, but the completion of the third stage in a very short space of time is favoured, which is shown in a separate table (no. 12).

The placenta was expelled with the fœtus in fourteen instances; in 542 within 5 minutes (with 11 cases of hæmorrhage); within 10 minutes in 399 women (with hæmorrhage 10 times); within 15 minutes in 131 (with 5 cases of hæmorrhage); and in 55 within 20 minutes (with no flooding); in 17 within 25

minutes (with one case of flooding); in 15 at 30 minutes (without hæmorrhage); in 9 at 35 minutes, with same result, of whom 2 had morbid adhesions and 6 inertia; in 5 at 40 minutes (2 had irregular contractions, and 3 inertia); 2 at 50 minutes, in one at 60 minutes, and in one at 65 minutes, with like result. The last 3 cases were attended by the pupil in charge. The placenta was retained 11 times; in two from morbid adhesions; two from irregular contractions; in seven from inertia; two primiparæ and five pluriparæ. In all of these latter cases, it was squeezed out, within forty-five minutes.

Prolapse of the funis happened 12 times; 4 times in primiparæ, 8 in pluriparæ. Of the primiparæ one child was born putrid and dead, and two living. Of the pluriparæ four children were still-born, two of whom were putrid, and two died shortly after birth. Version was performed twice; the children were saved. The forceps was used 6 times—2 children were preserved. There were two footlings, one of which was saved; and two were left to natural efforts, the cord in each case being pulseless on admission.

Of scarlatina 15 cases were admitted, 14 of which were in primiparæ. The rash appeared in 8 on the second day, and in 3 on the third day; 6 were not sent out of hospital, 3 of whom died. The disease never spread in the wards. There was one case of typhus and one of typhoid. There were 9 cases of peritonitis, exclusive of those who died; 5 were in primiparæ, 4 in pluriparæ. One patient had phlebitis, and recovered.

Table 13 gives the exact number of patients delivered; the number of the ward, with the deaths as they occurred.

There were 380 primiparous cases, of whom 12 died, 7 from zymotic disease; 858 were pluriparæ, of whom 3 died, 2 from zymotic diseases.

Table 14 gives the number of deaths from zymotic diseases in the several poor-law districts during the twelve months, and the number of patients admitted from each district and delivered in the hospital, together with the number of deaths that took place amongst them of a zymotic type. This is done in order to show 'a large maternity is not the centre of zymotic diseases, nor does it engender epidemics.' Out of 758 deliveries of persons coming from the 3 northern districts there were 7 deaths, whilst in the districts themselves there were 757 deaths; and of the 478 delivered, coming from the southern side, there were 2 deaths, against 1,233 occurring outside in the district.

In the discussion which followed the reading of the paper, the president, Dr. Athill, called attention to the remarkable application of the forceps, before the os was fully dilated. Whilst believing that such practice was safe in the hands of so skilled an operator as Dr. Johnston, he thought for the unskilled and inexperienced practitioner it would be dangerous to a degree and absolutely unsafe. He considered a mortality of $\frac{1}{3}$ per cent. from puerperal causes was as favourable a report as could be given by any practitioner in the kingdom.

Dr. Cronyn bore testimony to the ease with which Dr. Johnston applied the forceps, and delivered when the os was no larger than a halfpenny.

Dr. Henry Kennedy believed that when a patient, after admission into the hospital, exhibited signs of sickness totally independent of what might be expected to arise in connection with pregnancy, the probability was that the seeds of disease were im-

planted in her before she entered the hospital, the act of delivery being sufficient to bring to life and to develop the disease. Dr. Kidd inquired whether it was ever found impossible to deliver when the forceps was applied before the os was fully dilated. Dr. Johnston replied in the negative, and related a case he had succeeded in delivering, where craniotomy had been previously performed. He strongly advocated the double curved forceps as the more useful instrument.

Dr. M'Clintock thought it must be now a received fact, from Dr. Johnston's cases, that the forceps can be applied with safety both to mother and child before the os is fully dilated, but knowing that the first stage of labour can be prolonged to a great length with impunity to mother and child, he considered it would be a most hazardous practice to apply the forceps when the head was high up in the brim, simply because the labour was tedious through a rigid os; at the same time, in case of an emergency, such as prolapse of funis or convulsions endangering life of mother or child, it would be justifiable, and, in future, a source of great comfort to know that they could be employed in this stage with impunity.

Dr. Johnston, in conclusion, took exception to Dr. M'Clintock's opinion that the prolongation of the first stage could be allowed to proceed with little or no danger to the patient, and related a case which deeply impressed him to the contrary, where a woman had been allowed to remain in the first stage for a considerable time, dying subsequently, and the necropsy revealing a complete separation of the cervix from the body of the uterus. He has never had occasion to regret his bold step. Respecting Dr. Kidd's observation of the unyielding and rigid os requiring an enormous and dangerous amount of force to dilate it, he found with gradual traction the os soon yielded and expanded.

W. C. GRIGG, M.D.

ANATOMY AND PHYSIOLOGY.

MALASSEZ AND PICARD ON MODIFICATIONS OF THE BLOOD IN ITS PASSAGE THROUGH THE SPLEEN. Researches on this subject hitherto have yielded contradictory results. Some observers (Beclard, Lehmann, Gray), have found the proportion of corpuscles smaller, after passage of blood through the spleen, while Franke has asserted it to be larger.

The authors thought (*Comptes Rendus*, Dec. 21) that these discrepancies might arise from the experimental conditions not being sufficiently determined, or the methods sufficiently rigorous. As processes of analysis, they used parallelly—1. Numeration of the corpuscles (by Malassez's own method). 2. Determination of the largest volume of oxygen a given quantity of blood could assume (by M. Grehaut's method). [By globular richness they denote the number of red corpuscles per cubic millimetre of blood; by respiratory capacity, the quantity of oxygen which a hundred cubic centimetres of blood, supersaturated with this gas, liberates in vacuo.]

Before comparing the blood which enters the spleen with that coming from it, it was desirable to find whether the venous blood is always identical with itself; whether it does not, like that of other glands, present globular variation, according as the organ is at rest or in action. M. Cl. Bernard has shown that splenic venous blood has a different aspect, according

as the nerves going to that organ are excited or paralysed; the author therefore studied the globular richness and respiratory capacity in these two states, and it appeared that paralysis produced an increase of these qualities in splenic venous blood, whereas, during excitation there was no increase.

They were now in a position to compare the arterial with the venous splenic blood, and they drew some of each—1. During excitation of the nerves; 2. During their paralysis; 3. Without any action being provoked in the nerves.

During excitation, there is only a very slight difference between the arterial and the venous blood; still, the constancy of the results showed there was a slight increase in the venous blood. There was diminution only in cases in which the arterial blood had previously been taken, and this was no doubt due to the hæmorrhage.

During paralysis, the differences become much more pronounced. If we assume that paralysis of the nerves produces the same effect on the spleen as on other glands, viz., a state of activity of the gland, we are led to suppose that when the spleen acts, the globular richness and respiratory capacity of the splenic venous blood are increased. This augmentation is a phenomenon (the authors think) peculiar to the spleen. In a series of experiments they made on the venous blood of the jugular, the crural, the vein of the submaxillary gland, etc., they found that paralysis of the sympathetic fibres going to the regions whence these veins come is followed by a diminution in the globular richness and respiratory capacity of the blood.

They next sought to ascertain whether the increase in question may go so far as to increase the globular richness and respiratory capacity of the entire mass of blood. The first experiments gave uncertain results; so, to avoid the repeated loss of blood in considerable quantity, necessary for the analyses by oxygen, they limited themselves to numeration of the corpuscles. From five such experiments (of which they give numerical data), it appears that the globular richness at first increases, attains its maximum in from half an hour to an hour, and then decreases. It is remarked, however, that the times were reckoned from the end of the operations, the duration of which was very variable, and the paralytic phenomena were produced during the operation, but their occurrence is not precisely determined; so the figures only give an approximate curve.

M. Picard, in a recent paper, showed that there is normally in the spleen a much larger quantity of iron than that contained in the same volume of blood. Now, if, in the experiments in which the spleen has been paralysed, the proportion of iron be ascertained at various moments after paralysis, it is found to diminish, and it may become very like that in normal blood. Thus, instead of 0.24 gr. of iron per 100 cubic centimetres of spleen (the normal figure), there were found only 0.15 gr., 0.098 gr., 0.053 gr. In the last case (0.053 gr.) the spleen presented an appearance quite characteristic; it was turned back on itself, and flabby, and the tissue, which, on paralysis occurring, was violet-brown, had a rose colour when the analysis was made.

The authors next give some figures from experiments in which splenic arterial blood was compared with venous, no nervous action having been produced experimentally. It is shown that in the physiological state the blood coming from the spleen has a proportion of corpuscles and a respiratory

capacity higher than those of the affluent blood. The increase was constant, but it is capable of varying within wide limits. They propose afterwards to determine precisely the causes of those variations, which are accompanied by changes in the appearance and functions of the organ.

GOLDING BIRD ON THE DISSECTION OF THE EYE.—Mr. C. H. Golding Bird, Demonstrator of Anatomy at Guy's Hospital, says, in the *Guy's Hospital Gazette* of February 10, that the usual methods of dissecting the eye, as described in the text-books of anatomy, though well calculated to display the several component parts, require so much care and manipulative skill satisfactorily to accomplish, that the study of the eyeball is in many cases conducted solely upon paper, and the requisite knowledge of it for examinations acquired from books and lectures. In order to obviate somewhat this state of things, and to render the dissection of the eye as simple as possible, the following instructions have been drawn up, to follow which the most inexperienced dissector need find no difficulty, while nothing of importance for all ordinary purposes will remain unexamined if proper care be employed.

The whole can be studied upon one eyeball, though a second would be advantageous; and the only instruments required—not usually found in the dissecting-case—are a camel's-hair-brush, an ordinary glass slide, and a glass tube drawn into a capillary point, which is preferable to a blow-pipe, however fine.

The dissection is supposed to be carried out upon a bullock's eye. Should the human eye be employed, allowance for the difference of size should be made.

1. Clean from fat and muscles, study the shape and general appearance of the eye-ball.

2. Holding the eye in the left hand, make with a sharp scalpel a small incision into the sclerotic, parallel to, and about half an inch from, the edge of the cornea, of such a depth that the black choroid is seen.

3. Now insert one blade of a pair of scissors into the aperture (piercing at the same time both choroid and retina, being careful not to wound the hyaloid membrane), and cut through all three coats completely round the eye-ball in the lateral meridian, keeping always the same distance from the cornea.

4. Place the eye, with the cornea downwards, in a vessel of water; and, on seizing the optic nerve and making traction, the weight of the vitreous body will cause it to separate into two portions: the anterior, containing the cornea, lens, vitreous body, etc., the posterior, the back part of the shell of the eye. Each will have to be studied separately; and, during the examination of the posterior part, let the anterior remain undisturbed under water.

A.—Of the Posterior Part.—(i.) Fill the cup-like cavity with water and let it rest in the palm of the hand; in it may now be studied the fundus of the eye, e.g., optic disc. (ii.) Holding it in the same position, remove with forceps the retina; the inner surface of the choroid will be exposed. (iii.) Now turn the 'cup' inside out over the tip of the forefinger of the left hand, and, commencing at the circumference, detach, with a camel's-hair-brush moistened, the choroid from the sclerotic. The ciliary nerves and vessels, as fine threads, lying in grooves in the lamina fusca that lines the sclerotic, and pass-

ing to the choroid, are seen during this process. (iv.) Remove the choroid by cutting through its attachment around the optic nerve, and placing it in water, float it on to a slip of glass, with its external (i.e., sclerotic) surface uppermost. With a camel's-hair-brush remove the pigment-cells from the surface, and, on holding it up to the light—still resting on the glass, the *venæ vorticosæ* will be seen. (v.) To complete the study of the sclerotic after the lamina fusca has been examined, divide it longitudinally through the centre of the optic nerve; on the surface of this section, at a point where the nerve pierces the sclerotic, the lamina cribrosa may be seen.

B.—Of the Anterior Portion.—(i.) Whilst resting upon the vitreous body under water, the cornea being uppermost, seize on each side with forceps the cut edges of the sclerotic and choroid, being careful not to include the retina. Raise the eye by means of the forceps thus applied. The vitreous body, lens and capsule, and anterior portions of retina, with the suspensory ligament and canal of Petit, will fall *en masse*, and remaining in the forceps will be the cornea, choroid plexuses, iris, and anterior part of the sclerotic. (ii.) In this latter part, study *in situ* the choroid and its plexuses and the posterior aspect of iris. Then brush off the pigment-cells from the choroid, and detach it from the sclerotic by raising its cut edge with a scalpel; continue this till the point of its attachment to the sclerotic is seen. This is marked by a white line, the ciliary muscle. A cut across in another part will show a transverse section of the same, and at the junction of the cornea with the sclerotic, the aperture of the canal of Schlemm (*sinus circularis iridis*) may be seen. The inner boundary of this canal is formed by the ciliary ligament, or ligamentum pectinatum. (iii.) As a final step, the laminae of the cornea may be stripped off. (iv.) The remainder of the eye (vitreous body, capsule, and lens, etc.) removed from the water, must be turned, so that the lens rest uppermost; and to keep it in this position pass some long pins obliquely through the vitreous body into a piece of wood or cork, on which it is advantageous that the specimen should be placed. On examination there is seen, immediately surrounding the lens, a clear space, and then an exact imprint of the choroid plexuses on the suspensory ligament of the lens (zonule of Zinn), and still more externally the milky-white retina appears, unless it happen to have become detached. (v.) Insert a fine capillary tube into the clear ring surrounding the capsule (i.e. perforate the innermost edge of the suspensory ligament). On inflating, the clear ring will swell into the sacculated or beaded canal of Petit, which is thus seen to be formed in front by the suspensory ligament of the lens, and behind by the hyaloid membrane of the vitreous body. (vi.) Incise the capsule: slight pressure suffices to extrude the lens, while the space left shows how the latter was implanted in the anterior surface of the vitreous body. Rubbing the lens between the thumb and finger will demonstrate its hard central or nuclear portion.

If a lens be kept a few days in alcohol, the peculiar arrangement of its laminae can be seen.

The anterior chamber is the space that exists between the back of the cornea and the front of the iris. The posterior chamber is between the iris and suspensory ligament of the lens.

The positions of the several parts mentioned, and their exact relations to one another, should be examined, if possible, in another specimen that has

been frozen, or hardened in alcohol, by means of an antero-posterior vertical section.

GALTON ON THE EPITROCHLEO-ANCONÆUS, OR ANCONÆUS TERTIUS (GRUBER).—Mr. John C. Galton contributes (*Journal of Anatomy and Physiology*, November, 1874) one of his exhaustive articles, and commences an elaborate essay by expressing himself, in the words of Dr. Burt Wilder, to the effect that 'there is need of more accuracy in the dissection, delineation, and description of muscles, since at present there is great confusion respecting the nature of true muscular integers, and the basis of muscular homologies.'

After recapitulating the works of other observers of muscular 'anomalies,' he records his own experience and investigations as regards this muscle. 'Professor Gruber,' he states, 'though he figures its occurrence in only eleven genera of mammals, exclusive of man, has, nevertheless, found this muscle in no fewer than forty-seven genera, a list of which is given at the end of his supplementary paper.' The author adds to this list, and gives figures of three new genera, viz., *Phascalomys* (*wombata*), *Echidna* (*setosa*), and *Chelopus* (*didactylus*), and gives in addition a figure of the muscle in *Myrmecophaga tamandua*, in which animal it has been already described, but not figured, by Rapp in his well-known monograph, under the name of 'anconeus parvus.'

It would appear from the observations of Mr. Galton and others that the epitrochleo-anconeus is, almost without exception, present and well developed throughout the whole group of Edentata. In the *Monotremata*, the muscle has been found by Professor Wood in the *Ornithorhynchus*, and by Mr. Mivart and the author in two separate species (or varieties?) of *Echidna*, so that it may be almost safely assumed that this muscle is always present in this order. In the *Ungulata* it seems to occur but rarely, or, what is more likely, has not as yet been carefully looked for. M. Gratiolet, though he does not figure it, seems to have recognised it as a factor of the triceps. With regard to the *Carnivora*, *Rodentia*, and *Insectivora*, the members of these three orders are so numerous that as yet no generalisation as to the occurrence of the epitrochleo-anconeus in them has been arrived at, though there seems to be warrant for the statement that this muscle is fairly frequent in all the three groups.

Mr. Galton says 'When we arrive at the *Primates*, we find an evident falling off in the frequency of occurrence of the muscle; for though it is sparingly—certainly not universally—present among the lemurs and lower monkeys, it seems to become lost among the anthropoid apes, and occurs finally in man, though comparatively frequently as a muscular anomaly, still only as an anomaly.'

'Professor Gruber, in the first of his two papers, rightly concludes that the muscle in question is homologous in man and the other mammals, this conclusion being supported by its nervous supply. In man, however, it is sometimes an independent muscle, sometimes a factor of the triceps brachii, while in the rest of the mammalia it is always an independent structure. It is further stated that its function in man is to guard the ulnar nerve and the vessels which accompany it from pressure, and to act as adjutant to the triceps brachii, and to the liga-

mentum cubiti mediale in the way of support of the elbow-joint on its median aspect. In other mammals it acts as an adductor of the olecranon and a supinator of the forearm, being adjutant to the extensor or extensors of the forearm, and serving to protect from pressure either the ulnar nerve and its accompanying vasa alone, or the median nerve and brachial vessels in addition to these.

'In man it has the character of a structure retained from an earlier and lower condition of existence, being, in other words, a *Thierbildung*, while in other mammals it is a necessary and functional mechanical appendage of the elbow-joint.

'This muscle, when present, is generally well developed, rather than weak, in man, and is usually stronger in males, and on the right side, than in females, and on the left side.' Professor Gruber's observations in one month alone amounted to 100 bodies, and, without reckoning difference of sex, the muscle was present in every three subjects and in every four extremities. Professor Wood found the muscle in four male bodies out of thirty-six, a more limited series of observations.

Mr. Galton, though he will readily concede that the epitrochleo-anconeus may in man be occasionally adjutant to the triceps, thinks that it seems to be somewhat of a straining after a *τέλος* to assume that any function other than an active one should be accredited to a muscle rather than it should be simply deemed rudimentary. 'He cannot help regarding the function of an organ but as dependent upon its physical capacity, and could as soon conceive of a ligament taking upon itself the active duties of a muscle, as of the latter enacting the passive rôle of its far less highly organised coadjutor. Better declare at once that a purely muscular slip is functionless, than assume that it exercises the office of protecting a nerve from external injury.

'Seeing, then, that this muscle has been found so frequently in all the lower mammals, and that it is so invariably present in an order—and that, too, one of the lowest—the myology of which, at any rate, has been most carefully studied, while it becomes less frequent among the lower *Primates*, to finally disappear among the anthropoid apes, and only to emerge again occasionally in man as an "anomaly," we have reason for regarding it, as we do such a structure as the supracondyloid process, as a now almost functionally useless heirloom, which has descended to us from very remote ancestors.'

The author concludes his paper by the apt remark, that 'One source of difficulty and of probable fallacy must have occurred to every one, though no allusion is made to it in anatomical writings—in the fact that while perhaps only one member of a species among the lower mammals has been once dissected, hundreds of human subjects—in spite of the indifference manifested in the majority of London dissecting rooms—have been under careful investigation, so that it is possible in the case of the former, instead of that which is normal presenting itself, an anomaly has been stumbled upon, which has forthwith been registered as normal.'

The paper is admirably illustrated on stone by Mr. Galton himself, and shows the epitrochleo-anconeus in *Myrmecophaga tamandua*, *Chelopus didactylus*, *Phascalomys wombata*, and *Echidna setosa*.
EDWARD BELLAMY.

NAUNYN ON THE PRESENCE OF SUGAR IN NORMAL BILE.—At a meeting of the Königsberg (Prussian) Verein für Wissenschaftliche Heilkunde held on March 9, 1874, Herr Naunyn made some remarks on his discovery that sugar is present in the normal bile of rabbits. In all the animals in whom he had made biliary fistulae, he had invariably found sugar in the first drops of bile which escaped; a proof that it must actually exist already in this secretion—the quantity of sugar in the bile secreted afterwards was, however, found to undergo a progressive increase. The importance of these facts in relation to vital (? normal) glycogenesis was also discussed, but the report in the *Berliner Klinische Wochenschrift* (no. 2) January 11, 1875, does not mention the conclusions of Herr Naunyn.

[No mention is made of the tests employed, or of the precautions to avoid fallacies. At present the results of Dr. Wickham Legg's experiments stand in apparent contradiction; unless, after injury of the medulla oblongata, all the sugar escaped in the bile, instead of appearing in the urine.]

W. BATHURST WOODMAN, M.D.

MEDICINE.

TARIOTE ON THE TREATMENT OF SUDDEN INTESTINAL OCCLUSION BY OPIUM.—M. Antoine Tariote, in *Thèses de Paris*, no. 426, 1874, relates two cases which occurred in M. Moutard-Martin's practice, in which appearances of intestinal occlusion that had shown themselves suddenly quickly disappeared under the influence of opium given in large doses. The following draught was given: Thebaic extract ten to fifteen centigrammes; white emulsion, 125 grammes; syrup, thirty grammes; a teaspoonful to be taken every hour until symptoms of narcotism appeared.

M. Moutard-Martin has given as much as thirty centigrammes of extract of opium in one day.

When action of the bowels takes place, the medicine is discontinued. M. Tariote concludes that intestinal occlusions may be divided into two very distinct categories: 1. Intestinal occlusions of slow origin, caused either by simple accumulation of fecal matters, or by paralysis of the intestine or diminution of its size in consequence of the presence of foreign bodies, stricture and compression; 2. Intestinal occlusions which make their appearance very abruptly and rapidly, arising from true internal strangulation, invagination, retroversion or twisting of the intestine. In gradual intestinal occlusion, opium can only be used to overcome the pain or sufferings of the moribund patient. In sudden intestinal occlusion, if there be no well confirmed internal strangulation, opium employed from the commencement, concurrently with applications of ice to the abdomen or blood-lettings, calms the local irritation and the resultant spasm. It also quiets the accidents arising from the general irritation, anxiety, small pulse, chilliness, etc. This treatment may by itself re-establish the circulation of the gases. The re-establishment of the circulation may be advantageously hastened by the administration of a purgative.

HERVEZ DE CHÉGOIN ON NERVOUS HEADACHE AND ITS TREATMENT.—M. Hervez de Chégoïn, in the *Union Médicale* for October 1874, after having

verified the dilatation of the arterial vessels of the encephalon and the face during attacks of nervous headache, considers it as an arterial neurosis. Its starting-point is in the great sympathetic, its precise seat in the nervous filaments which accompany the arteries. Its material phenomena are seen in the dilatation of these vessels, and in the compression it produces on the brain and the other organs, for, in a true fit of intense nervous headache, patients suffer universally, the hands are swollen, the muscles painful, and movements of the joints distressing.

M. Hervez de Chégoïn concludes from these facts that the treatment should be directed against the distress of the nervous system of the great sympathetic, and against the resulting arterial dilatation which in his view constitutes the essential characteristic of the disorder, in which it is necessary to distinguish three things, the intermittent character, the pain, and the arterial dilatation. A special therapeutic treatment, founded on the rigorous appreciation of and reasoned out from these elements of the disease, leads to the good results which have been obtained by the administration of pills composed as follows.

Sulphate of quinine, tannin, each 5 centigrammes (0.75 grain), aconitine, 1 milligramme (0.015 grain) for one pill. One of these pills is given during the day; but some patients, having of their own accord exceeded this dose, take as many as three or four of them daily, with marked benefit. Tannin, in particular, seems to have a special action, which explains the relief obtained by the use of certain substances which, like Paullinia, contain it. This treatment, however, is incomplete, since it does not touch the intermittence nor the pain; these are met by substances contained in the pills for which the formula is given above.

DISEASES OF CHILDREN.

BAIZEAU ON SPONTANEOUS RUPTURE OF THE UMBILICUS AS A CONSEQUENCE OF PURULENT PERITONITIS.—Dr. Baizeau reports (*Archives Générales de Médecine*, Feb. 1875) that twice in the course of years he has attended children who, after attacks of peritonitis, have had purulent effusion which has discharged itself at the umbilicus with resulting cure. Abscesses of the liver, of the iliac fossa, etc., sometimes perforate in the same way with cure; but he considers it rare for the same result to follow in purulent peritonitis, death being the common sequel.

Rilliet and Barthez quote two cases in their work on the *Diseases of Children*, but one of these, he thinks, should be considered as a collection external to the peritoneum. The other, reported by Dr. Aldis in the *Edinburgh Medical and Surgical Journal*, 1847, is briefly as follows. A little girl, seven years old, had acute peritonitis, followed by purulent effusion. Dr. Aldis saw her eleven weeks after the commencement of the acute attack; fluctuation was only made out a month later, and the pus was discharged spontaneously by the umbilicus on June 7, 1846; it continued to run till the 12th, and was quite healed and the child well on Sept. 30.

Another case was published by Bernhardt in the *Medicinische Zeitung*, March 1842. The child, five years old, was attacked with peritonitis on June 6,

1841. Active antiphlogistic treatment was used, but effusion took place; on the 22nd the umbilicus was prominent and red, and on the 25th it ruptured and continued to discharge for some time, but with an eventual cure.

Féréol has collected some similar cases in puerperal peritonitis in adults, but Baizeau thinks it is often difficult in these cases to make sure that the pus is actually in the peritoneum. He gives one case where a trocar was first used, and the matter gathered again and discharged itself by the umbilicus; a fistula remained for six months.

In another case the pus was discharged, both by umbilicus and vagina, and the patient recovered.

Dr. Baizeau quotes at length the two cases he has met with which are briefly as follows.

1. A boy, twelve years old, had general peritonitis in February 1868, with evident effusion, complicated by pleuro-pneumonia on the right side. This was successfully treated, and followed by a large parotid abscess. On March 20, rather more than a month from the commencement of the illness, the abdominal symptoms, which had been masked by the severer chest-complication, again became troublesome, and on April 2 several litres of greenish grumous inodorous pus were spontaneously discharged from the umbilicus. A drainage-tube was put in, passing into the pelvis, and warm-water injections were used. Then a pleuritic effusion occurred, and was punctured with the trocar; and injections, first simple, then iodised, were used here also. The child improved till April 26, when his abdominal pus became very fetid, and rigors and fever came on. Free iodine injections* checked this. They were continued twice daily till May 7, and after this once daily. Meantime the pleural fistula had closed, but was reopened on June 21, as it was prominent, and fluctuation could be detected. A tube was put in and iodine injections used. Eventually in July the patient was allowed to get up and walk about, but the tubes were kept in, the one in the pleura till October 1, and the one in the abdomen till December 20. The child regained perfect health, and suffered no inconvenience from intestinal adhesions. Dr. Baizeau considers that the iodine injections not only prevent putrid changes, but modify the peritoneal secretion. He considers the case one of purulent diathesis rather than infection from the first pus in the peritoneum, and in support of this opinion quotes two other cases of what he considers to be purulent diathesis.

2. The case of a girl, ten years old, is similar to that of the boy, as far as the peritoneal lesion is concerned, the pus discharging again spontaneously at the umbilicus, with immediate relief and improvement of the patient. Dr. Baizeau saw her in consultation and dilated the orifice, and introduced a tube, through which warm-water injections were made night and morning; in a little more than a month the tube was removed, and in six weeks she was able to go to Paris.

Baizeau considers that, without nature's own efforts to get rid of the pus, both children must have died, as most cases do before rupture occurs; therefore he advocates assisting nature by plunging in the trocar at the same place. All cases of purulent peritonitis will not admit of this treatment, on

account of the intestinal adhesions forming pouches, which draining and injection will not reach; but generally in purulent cases, as in purulent pleurisy, the adhesions are soft and scanty.

Infancy and parturition are conditions which favour this natural cure, as the umbilicus in both is soft and yielding. It is, however, possible that a similar cure might occur in other people.

J. KNOWSLEY THORNTON.

SURGERY.

NUSSBAUM ON THE TREATMENT OF UNUNITED FRACTURE BY TRANSPLANTATION OF BONE.—In the *Aerztliches Intelligenz-Blatt*, Feb. 23, 1875, Professor Nussbaum, of Munich, publishes a very interesting and practical clinical lecture on the treatment of ununited fracture, its pathology and methods of treatment, and particularly on the treatment by the transplantation of bone, in complicated gun-shot fractures, resulting in an open false joint, with great loss of bone-substance and necrosis, where the cartilage-encrusted extremities are merely bound together by a long thin tendinous band. As regards the limbs, he confesses that he has had only hitherto one instance in which he has employed the method, but with such a singular amount of success as to afford great encouragement to further attempts in the same direction.

A Saxon lieutenant, twenty-four years old, on July 12, 1870, in the fight at Mars-la-Tour, received a very severe gun-shot wound in the right forearm. The ulna was smashed in the middle, the splinters of bone had necrosed, the periosteum had been destroyed, and subsequent cicatrization had resulted in a false joint, having about two inches and a half of open wound. The two approximating ends of the fractured bone were united by means of a thin fibrous cord. Although the radius was intact, the functions of the bone were so limited, and its abnormal motion so exaggerated, that the patient was invalided. On July 14, 1874, the patient being chloroformed, the false joint was exposed. Both ends of the fractured bone were thin, covered with a pointed cartilaginous process, and slightly united by means of a weak, tendinous false ligament. The pointed cartilaginous extremities and the thin false ligament, being rather in the way than useful, were cut off with strong scissors. Next, the upper surface of the proximal end of the ulna was half sawn through, about two inches and a-half from its extremity, and with a sharp cutting chisel this upper piece of the ulna, with its periosteum, was split off, parallel with its upper surface, yet so that the periosteum of the pointed extremity and of the under surface were not both cut through; thus the detached portion of bone had still a slight nutrient bridge derived from the periosteal covering. Finally, the portion of bone thus detached was so deposited in the gap, that its internal upper surface now became external, the under internal, and the outer surface became the upper one. Had the transplanted portion been turned downwards so that the now upper surface had become the under, the periosteal bridge remaining on the under surface must have been much more dragged upon and torn, and it would have been probable that the blood-communication, through the connecting periosteal slip, might have been entirely cut off.

* The injecting lotion was composed as follows: Tincturæ iodi, xvjss; potassii iodidi, gr. xv; aquæ ad ʒxij. The quantity of iodine was doubled after a time.

[Without the accompanying engraving the description given reads somewhat obscurely, but it would seem that the transplanted portion of the bone obtained its new position by a sort of *mouvement en bascule*.—*Rep.*]

In the gap in which the transplanted portion of bone had been placed, a tolerably deep incision had been previously made into the indurated soft parts, to promote some inflammatory action in the neighbourhood, and to favour the adhesion of the introduced portion of bone. The wound was dressed with carbolised dressing and closed with seven sutures, and subsequently enclosed in a gypsum bandage furnished with a trap-door.

The operation was so successful that in December, 1874, the patient was gazetted to a grenadier regiment.

Professor Nussbaum makes the following remarks on the two great mishaps after fracture, viz., healing bent, or with considerable shortening. Supposing a case is met with within six months, the badly united fracture should be simply broken up again under chloroform, as, before the definitive callus is formed, a refracture is neither difficult nor dangerous.

A linen cloth should be laid on the edge of a table, and the fracture to be rebroken brought quite to the margin. A strong pressure downwards readily breaks the provisional callus, and it is best broken in the direction corresponding with the faulty curve, and should be commenced by extension (for which purpose an extension bandage is most serviceable). Considerable risk is run in refracture, during this stretching, of rupturing some artery adherent to the callus, since the process is never effected slowly but always with a powerful jerk. But if the callus be broken up by bending inwards, the necessary amount of stretching can be conducted slowly and surely. A good position having been obtained, the new fracture can be treated as a simple one.

If six or seven months have passed and the definitive callus have become of ivory hardness and stronger than the sound bone, should any attempt be made at refracture, it would remain intact, and the resulting fracture of the normal bone would render the condition worse than before. Under these circumstances only operation is of use.

Langenbeck employs two processes in the subsequent operative procedure on the bones. After having made a small incision in the skin, he first bores through the callus at the angle; he then enters a small fine key-hole saw into the hole thus bored, and cuts through the bent bones right and left, to such an extent that merely a thin bridge of the cortex of these bones remains intact. The wound is then carefully cleansed. After granulation has taken place and the integument has healed over, he undertakes, as the second portion of the operation, the fracture of the remaining thin cortex, and treats it, by means of a gypsum bandage, as a simple fracture of the bone. The idea is admirable. The object of this partial sawing is, that the mass of definitive callus, which has become as hard as ivory and could itself not be broken up, is readily ruptured when it has been about three parts sawn through, and the fracture can be effected at the 'place of election.' It is a matter of fact that the wounds effected by the boring and sawing portions of the operation produce such inflammatory reaction that the remaining lamellæ thereby become soft and elastic, and so the rest of the operation is rather a bending than a fracture. The most important advantage, however, of Lan-

genbeck's operation, consists in this, that when there is a wound there is no fracture; and at the time when one has to be made and treated, there is no open wound.

The American surgeons reduce the bones to be broken later on, simply by drilling five or six holes through them. Szymanowsky saws a wedge-shaped piece out, three parts of the thickness of which he removes, and after the healing of the soft parts, breaks through the remaining portion. Professor Nussbaum's plan is to avoid the sawdust and *débris* arising from the drilling and sawing operations, by using a fine sharp cabinet-makers' chisel. He chisels through about three-quarters of the thickness of the bone, and then withdraws the chisel, allows the wound to heal, and afterwards breaks through the remaining portion.

[The entire paper is one of great clinical interest, not only as regards Professor Nussbaum's own experience, but of that of others; the reader is therefore referred to the original for greater detail.—*Rep.*]

EDWARD BELLAMY.

SPENCE AND TEALE ON THE TREATMENT OF FRACTURED PATELLA.—Professor Spence of Edinburgh remarks (*Practitioner*) that, though the screw-hooks designed by M. Malgaigne for transverse fracture of the patella are perfect as a mechanical appliance for maintaining the fragments in accurate apposition, yet they have never been very generally used on account of the pain and irritation of the skin often caused by them. Of late years Mr. Spence has adopted the following method of using these hooks without inserting them through the integument, and it answers its purpose admirably. The two fragments of the patella being held by an assistant in as close apposition as the amount of effusion in the joint will allow, a broad piece of strong moleskin adhesive plaster is applied close above the upper fragment: this piece should nearly encircle the limb, and to make it fit round the upper edge of the patella a crescentic piece is cut out of the centre of the lower margin. A similar piece is applied below the lower fragment. Two or three smaller bits are then placed one over the other just where the points of the hooks will be fixed, so as more thoroughly to protect the skin. Care must be taken to have the integuments on the stretch when the plasters are applied, and the latter should be put on some hours before the hooks are inserted, so that they may have time to adhere firmly: this may be secured by keeping a bandage firmly applied over the plasters in the interval.

In the same journal, Mr. McGill describes the mode of treatment adopted in these cases by Mr. Teale of Leeds. He fixes the limb on a straight back splint, or simply places it slightly bent on a pillow between sand-bags, and applies evaporating lotion. He finds that the fragments thus left to themselves, without the use of any hooks, straps, or other apparatus, approximate steadily and naturally. The patient is kept in bed for six or eight weeks, and when allowed to get up, is fitted with a knee-cap of chamois leather. Mr. McGill testifies that the results of this 'expectant treatment' are quite equal to those which can be obtained by any other plan. He relates a case in which the distance between the fragments was thus spontaneously reduced from $1\frac{1}{4}$ inches to $\frac{1}{4}$ inch in less than five weeks. He gives the following explanation of the process. The separa-

tion of the fragments is in the first instance partly due to spasmodic contraction of the quadriceps extensor, which subsides naturally after a few days, and partly to the effusion into the joint which always occurs at the time of the accident; as this is slowly absorbed, the fragments again fall together. Lastly, the fibrous band which is formed between them has, like all other cicatricial tissue, a tendency to contract, and thus completes the approximation.

J. W. LANGMORE, M.D.

MATERIA MEDICA AND THERAPEUTICS.

SPENCER ON TRIMETHYLAMINE IN RHEUMATISM AND GOUT.—The February and March numbers of the *Practitioner* contain a long article on the value of trimethylamine in the treatment of rheumatism and gout, by Dr. W. H. Spencer, physician to the Bristol Royal Infirmary. Trimethylamine is not a new remedy; Dr. Awenarius, a Russian physician, commended it to the notice of the profession twenty years ago as a cure for rheumatism, under the name of propylamine. He had treated with it 250 cases of rheumatism with remarkable success, and considered it little less than a specific. Since then it has, from time to time, been somewhat extensively used on the continent, and its value has been reported on by numerous clinical observers, but the opinions expressed have been most contradictory. The very different results obtained were probably due to the uncertain composition of the preparation which was employed. It was a liquid, of most nauseous odour and taste, which was obtained by the distillation of herring-brine; it contained, besides a variable quantity of trimethylamine, ammonia and ammoniacal compounds and a considerable amount of organic impurity—chiefly animal oil. In fact, it was ascertained by analysis, that the amount of the essential ingredient present in the solutions sold varied from two to fifty-five per cent. Within the last two years, however, the process of manufacture has been greatly improved; and, although chemically pure trimethylamine is not yet an article of commerce, still the solutions now sold are fairly uniform in composition, containing about twenty per cent. of the compound ammonia.

A so-called chloride of trimethylamine is also sold; it is really a mixture of that salt with chloride of ammonium, and, according to Dr. Spencer, is not as reliable in its effects as the solution.

Dr. Spencer has treated sixty cases of rheumatism and gout with these preparations with most satisfactory results; he gives brief notes of some twenty representative cases. He begins generally by giving from four to eight minims of the solution every two hours, gradually increasing the interval as the pains subside, which generally happens on the third or fourth day. Trimethylamine appears to be quite as beneficial in chronic cases of rheumatism and gout as in the more acute. Dr. Spencer relates the history of two patients who had been under treatment for months, and who were cured in three and five weeks respectively from the time when this remedy was prescribed; and they continued well for some months afterwards. In the acute cases also relapses seem to have been both rare and slight.

Trimethylamine in full doses sometimes causes

headache and occasionally, in delicate people, some gastric disturbance and even diarrhoea, but Dr. Spencer has not found these symptoms at all troublesome.

[This remedy has, as above stated, often been quite as favourably spoken of by other observers; it has held its ground in spite of obstacles for twenty years, and the fact that it has never become popular seems to be satisfactorily explained by the unreliable character of the preparation formerly employed. In its present improved state it seems certainly to deserve more attention than it has hitherto received at the hands of English hospital physicians.—*Rep.*]

J. W. LANGMORE, M.D.

OBSTETRICS AND GYNÆCOLOGY.

LÖHLEIN ON THE MEANING OF SUBPERITONEAL ANTE-UTERINE EMPHYSEMA AT DELIVERY.—At a meeting of the Berlin Obstetrical Society, Herr Löhlein related a case which occurred in the Klinik in the year 1873. The woman was thirty-five years old, in labour with her third child; former confinements had been difficult. There was an universally small pelvis; labour was very protracted. Incisions of the os were made, and vaginal injections used. There was ante-uterine emphysema. Perforation of the head and cephalotripsy were performed; the result was fatal. The necropsy showed subperitoneal ante-uterine emphysema, complete attrition of the posterior wall of the cervix, and a perforation of the posterior wall of the bladder. Dr. Löhlein very fully described this specimen, particularly the origin of the emphysema, and coupled with it an observation made in the Poliklinik on a female aged thirty-one, in labour with her fourth child, with a middle-sized pelvis. Various attempts were made with the forceps, which slipped off. There was superficial laceration of the vagina, and tearing of the os. The child was hydrocephalic. Perforation was performed, and followed with cephalotripsy, on account of the extraordinary hardness of the cranial bones. Death took place on the tenth day, with symptoms of peritonitis. A necropsy was not permitted.

In the discussion which followed, Herr Fasbender reported a case as an addition to Löhlein's, where he had discovered crepitation through the abdominal parietes in decomposition of the fœtus. It happened in a woman who had been plugged for some days for placenta prævia. The phenomenon was to be distinctly made out through the abdominal walls; and upon extraction of the child by version, there was found to be emphysematous decomposition of the whole of the covering of the child. The crepitation entirely disappeared upon the birth of the fœtus.

Herr Ebell related that a similar phenomenon, detectable by palpation, was mentioned by Von Olshausen after the entry of air into the veins of the uterus.

Herr E. Martin saw a case in a woman who had been catheterised by a midwife, with a straight instrument. When she was admitted into the hospital an ante-uterine emphysema was recognisable (on the right side and towards the middle. The fœtus was removed by the forceps. The patient died in a few days; and a necropsy showed a perforation of the posterior wall of the uterus and an

infiltration of pus into the right side of the ante-uterine connective tissue. This and Herr Lohlein's case were the only instances he had ever met with of ante-uterine emphysema, out of a great number of instances of rupture of the uterus; consequently he could accord to this symptom only a low diagnostic value.

SINCLAIR ON MANUAL DILATATION OF THE OS UTERI.—Dr. A. D. Sinclair (*Boston Medical and Surgical Journal*) fears that, owing to the variety and perfection of the mechanical contrivances now used for dilating the os uteri, the use of the hand for that purpose is not so much kept in mind as it ought to be. Although sponge-tents, Barnes's bags, etc., are most valuable instruments for inducing premature labour, yet in many cases of emergency, such as the occurrence of convulsions, or of uterine hæmorrhage, when prompt delivery is necessary and the physician is obliged to remain at his post, the use of the hand offers certain advantages. It is always available; there is no delay in searching for or procuring the necessary apparatus; wherever a sponge-tent or India-rubber bag can be inserted, a finger can be introduced. The operator is kept informed as to the precise condition of the parts, and is able to regulate exactly the amount of force necessary to effect dilatation. The operation is exceedingly simple; one finger is first gradually insinuated through the os; then a second by its side, and so on, till at last all five, in a wedge-shaped mass, are inserted into the cervix. Soon the whole hand can be passed into the cavity, but it should be kept opposite the cervix until the os is fully dilated; if this point be not attended to, considerable difficulty may be met with in the subsequent operation of delivery after turning. Dr. Sinclair relates the particulars of several cases in which he adopted this plan, on account of convulsions, placenta prævia, alarming accidental hæmorrhage, etc. One of the patients had only arrived at the fifth month of pregnancy; the others at the seventh or eighth. The time required for the operation may not, even in a primipara, exceed an hour; sometimes the proceeding is completed in fifteen or twenty minutes; but occasionally three or four hours of patient effort are necessary. The use of chloroform or of ether, of course, greatly facilitates the process.

J. W. LANGMORE, M.D.

VAN WETTER AND DENEFFE ON VESICO-VAGINAL FISTULA CURED BY CAUTERISATION.—After referring to the successes of Bezzi of Modena, Galeus, and Cantermann, the authors (*Annales de la Société de Médecine de Gand*) give their own case as a more modest success, in consequence of the number of times it required cauterising and the smallness of the fistula; but they place it, nevertheless, as one among many proving the truth of M. Soupart's words, 'cauterisation cures vesico-vaginal fistulæ.'

In Nov., 1870, E. von C., aged twenty-five, was delivered of a large child; and, the labour not progressing very well, an ignorant woman used instruments, with the result of the immediate escape of urine from the vagina, of which the patient was conscious. The quantity of urine escaping was at first so great that none passed by the urethra; but gradually improvement took place, though urine still ran constantly away. In 1872 she saw Dr. Deneffe, and it was proposed to cure by means of cauterisation and the use of uniting forceps; but her friends frightened her out of submitting to the operation.

In 1873 she entered the service of a lady at Ghent, who was a patient of Dr. Van Wetter, and he persuaded her to submit to cauterisation. At the time the treatment was commenced her thighs, etc., were much excoriated with the constant dribbling. The fistula was situated in the anterior cul-de-sac, *i.e.* behind the anterior lip of the cervix; it was about six or seven millimètres in diameter. The urine flowed from it drop by drop, except when the patient exerted herself at all, and then it jetted out.

The treatment was commenced by cauterising the parts surrounding the opening with sulphuric acid and water, equal parts, applied with an asbestos brush, the application being repeated every fortnight; the fistula gradually contracted until the end of September, when it was less than half its original size, and the patient lost hardly any urine when sitting, and little when lying down; but still a good deal when moving about. A solution of chromic acid and water, equal parts, was now substituted, and used for two months with marked improvement; but the fistula was not cured, and the sulphuric-acid solution was again used. Sometimes she was almost dry for a fortnight, and then worse again; being better always just before menstruation. This was the state all through the summer; and at last the fistula could hardly be distinguished. They then applied a finely pointed stick of nitrate of silver to the fistulous track, and painted caustic potash freely on to the vaginal wall round the fistula. This process having been repeated till August 16, the patient announced that she had been hardly damp for the last fortnight; and the fistulous opening was found to be so small that the nitrate of silver could not be introduced, therefore the caustic potash alone was applied round about. And again on August 30, and September 13 and 27, she declared herself well; and the speculum, when introduced, remained dry. She was seen again in October and November, and had continued well. The cure was thus completed in twenty-eight sittings, extending over fourteen months.

The authors, in remarking on the case, dwell much on the escape from a dangerous and bloody operation, and on the fact that the patient was able to do her work all the time and suffered little. They speak of the great danger of Sims's operation when the fistula is in the anterior vaginal wall (peritoneal zone), and the difficulty when the fistula is deeply seated; also of the dread many patients have of the knife. In conclusion, they urge the general adoption of this plan, and allude to its being within the reach of every medical man, and requiring but few and simple instruments.

[Doubtless there are cases where this plan might be valuable; but the reporter thinks that the majority of patients would prefer a slight confinement to bed, and the small danger of Sims's operation, to such a tedious cure as that arrived at in the case related.—*Rep.*]

J. KNOWSLEY THORNTON.

TOXICOLOGY.

LABBÉE ON THE ACTION OF PHOSPHORUS.—In a series of articles in the *Mouvement Médical* (September and October, 1874) M. Labbée discusses the physiological action of phosphorus, with special reference to toxicology. The symptoms caused by the metalloid cannot be attributed to its direct

action, for uncombined phosphorus, as Ranvier has shown, exerts no appreciable influence on living tissue. Again, the great variety of symptoms and *post mortem* appearances in cases of phosphorus poisoning requires explanation. Lécorché's theory is the most satisfactory one which has hitherto been offered. He divides cases of poisoning by phosphorus into three groups, two of which are perfectly distinct, while the third includes mixed forms. 1. If phosphorus be swallowed during a meal, it undergoes oxidation in the alimentary canal. The resulting phosphoric acid is absorbed, and causes changes in the red corpuscles of the blood, attended by escape of their colouring matter, jaundice, hæmorrhage, and steatosis of various organs. 2. When phosphorus is taken on an empty stomach, phosphoretted hydrogen is produced, partly in the bowel, partly in the blood. The symptoms are almost purely nervous, such as acceleration of the pulse, marked fall of temperature, and convulsions; no jaundice or hæmorrhage occurs; the alimentary canal and the viscera are intact, and yet death ensues very speedily. 3. Sometimes, when phosphorus is taken on an empty stomach, the primary symptoms due to absorption of phosphoretted hydrogen are followed by those which are characteristic of poisoning by phosphoric acid. This must be attributed to the prolonged survival of the patient; there is time for the phosphoretted hydrogen in the blood to become converted into phosphoric acid, the effects of the latter compound being superinduced upon those of the former.

M. Labbé proceeds to insist on the superiority of the evidence furnished by morbid anatomy over that derived from chemical analysis in cases of suspected poisoning by phosphorus. The Society of Legal Medicine was requested, by a French tribunal, to decide whether an expert might legitimately infer poisoning by phosphorus from the presence of abnormal quantities of phosphoric acid or phosphates in the matters submitted to analysis, and this in the absence of any trace of free phosphorus, and of the characteristic structural lesions. The question, as might have been anticipated, was answered in the negative.

Personne's method of treatment is next alluded to. He found that the oxidation of phosphorus was prevented by essence of turpentine. Several cases of recovery, after considerable quantities of phosphorus had been swallowed, have been ascribed to the use of this antidote; but Depaire, in his report on this subject to the Belgian Academy of Medicine (April, 1874) asserts that turpentine failed to arrest, or even to modify, the symptoms and anatomical changes due to phosphorus-poisoning in dogs. Labbé accordingly concludes that it would be unwise to trifle with a remedy of doubtful value, and recommends the practitioner to rely on emetics, especially on sulphate of copper, in his treatment of these cases.

E. BUCHANAN BAXTER, M.D.

REVIEW.

Therapeutic Means for the Relief of Pain: Fothergillian Prize Essay. By J. K. SPENDER, M.D., pp. 226. London: Macmillan & Co. 1875.

Dr. Spender is well known as an able practitioner, but we question whether this work is quite worthy of him. Perhaps prize essays as a rule are not calcu-

lated to bring out the best work of a man; yet the subject is a tempting one; the title sounds attractive; in MS. perhaps the work read better than the average essay. We think it a pity that the author was not content with this moderate success.

In chapter 4, all that he really has to tell us is that opium relieves pain in various parts of the body; but why does he put it thus? 'I pass to the subject of disease in the abdomen, and we have only to study any monograph to find that the therapeutic history is in a large degree a song of the triumphs of opium' (p. 43). And again, 'The bare mention of that terrible disease, peritonitis, is suggestive of the siren lullabies of opium.' At the end of sixty pages, which might with advantage have been compressed into six, we fancy that the author himself begins to grow tired of elaboration and quotation. 'In relating the capabilities of drugs to allay Pain, it would be wearisome and quite superfluous to travel over the identical ground,' etc. And the rest of the book is little more than an enumeration of medicines, with a sprinkling of cases and extracts from the already well-known papers of others.

Of course there is evidence of a fair amount of reading. Anstie, Garrod, and others, are laid freely under contribution; but we fail to find anything sufficiently valuable or original to justify the putting forward of the volume. If there be anything special, it is perhaps the stress laid upon the value of small and frequently repeated doses of antimony and morphia in relieving pain and inflammation. But this Dr. Spender had already published in the *British and Foreign Medical Review*, in an article which really we prefer to his book.

We suppose it possible that his pages may be of use to some who read little, or who do not possess any modern standard treatises on therapeutics; but we could readily name half a dozen such treatises, in which all the practice that can be taught in words is already set down in a far more satisfactory manner than in the work before us. We repeat that we have no doubt it amply merited the medal of a society, but we regret that it has courted the criticism of the profession.

NEW INVENTION.

MATHER'S NEW BREAST-EXHAUSTER.—We have received a specimen of the new breast-exhauster lately introduced by Mr. Mather. This instrument is no doubt a great improvement upon those already in use. The novelty consists in the addition to the teat or mouthpiece of a valve, which freely permits air to be withdrawn, but prevents its return into the vessel. By this means the air is gradually exhausted in the receiver, and the flow of milk is kept up with little effort and entirely without pain. To facilitate removal, the neck of the receiver opposite the nipple-shield is pierced by a small opening; this must be covered with the finger while the instrument is in use. The introduction of the valve greatly diminishes the force of suction necessary to promote the flow of the milk from the breast, and also allows the power exerted to be regulated with nicety, so that the breast may not be drawn too far into the bell of the receiver. On this account the instrument is especially suited to cases of sore or cracked nipples, or to any case where great tenderness of the breast necessitates delicate manipulation.

CORRESPONDENCE.

DR. RUMSEY, F.R.S.

(To the Editor of the LONDON MEDICAL RECORD.)

SIR,—Dr. Henry W. Rumsey, of Cheltenham, has just retired in consequence of a severe attack of illness, which disables him from continuing his practice; and it is thought by many that this is a favourable opportunity for expressing their appreciation of his services to the sanitary cause, to the profession, and to the public. A sketch of his labours, extending over the greater part of his career, and of his consequent claims, has been drawn up, and is now in circulation.

I first met Dr. Rumsey before a Committee of the House of Commons, pleading at once for the poor and for the poor law medical officers. He was associated with his intimate friend, Robert Ceely, of Aylesbury; and to the energetic action of these two men, acting in concert with the Provincial, the British Medical Associations, and the press, the progressive improvement in the medical relief of the poor owes its origin. He took an active part in the endeavours of those who were seeking to put provident societies on a sound footing. Dr. Rumsey wrote on the health and sickness of town populations (1846); and in the year 1856 published his classical volume of *Essays on State Medicine*; which was followed year after year by a series of striking papers on sanitary science and administration. Dr. Rumsey is a scholar; and his writings, remarkable for clearness of exposition and originality of view, have undoubtedly contributed to impress the Legislature with its present views of the importance of public hygiene, which, like every good cause, has had to encounter hostility. If a sagacious Prime Minister has given the world the new reading of *sanitas sanitatum*, Dr. Rumsey has some claim to the credit of party enlightenment. But Dr. Rumsey began his labours in an age of indifference for the cause, which is only beginning to triumph when he is cruelly struck down.

Some persons held that public health is an affair that can be handled by nuisance inspectors. Dr. Rumsey, on the contrary, saw clearly that the public health could be best dealt with by specially educated medical men, well versed in science; and it is his great merit, that in the General Medical Council, as well as elsewhere, he sought to obtain a special qualification from the examining bodies for State Medicine. This would be in all time to come a guarantee of competency to the public; while it would open great careers to eminent State physicians, proceeding on the lines laid down by the Father of Medicine. One of the last papers I heard by Dr. Rumsey was on this very subject.

Dr. Rumsey, its chairman, was in constant correspondence with the joint Committee of the Social Science and the British Medical Associations; he spared no labour, and frequently at the sacrifice of his professional time came to London. His correspondence on public matters was unintermittent. Among many other avocations, Dr. Rumsey was a vigilant sanitary critic. He criticised freely the Legislature, the Government, the Public Offices, including that with which I am concerned, and the Registration of vital statistics. On some of these subjects he was, I think, wrong; at least I differed from him; but I do not hesitate to say that his criticisms were often beneficial, were animated by public spirit, and were characterised by fearless honesty of purpose.

During his career Dr. Rumsey has received many honorary marks of the appreciation of the profession; and has been recently elected a Fellow of the Royal Society. But at the close of thirty-seven years, full of his labours for public objects, and professional interests, in which he has expended much and received nothing, it does appear to me that if Dr. Rumsey was still in the vigour of his life the time has come when some substantial testimonial

might be presented to him. Such a step could only tend to encourage men to devote themselves to the public service. And now Dr. Rumsey, after climbing the steep side of the hill, is smitten down before he can enjoy the full fruits of professional fame, his claim is enhanced. He is a man of whom we may be justly proud. And the appeal now made in the name of that noble fraternity which binds the profession together as one body cannot be in vain. He will receive the crown he has won at last.

The British Medical Association and the Social Science Association, at the meetings of which Dr. Rumsey has presided in the health sections, will probably turn their admirable organisations to account in favour of the movement.

A central committee has been formed in London, including the most eminent men, and now it is proposed to invite leading members of the profession in the provinces to establish corresponding committees; their support will, I doubt not, be afforded. Dr. Rumsey himself, practising in the provinces, was one of their brilliant ornaments, and one of the most strenuous asserters of their claims and rights.

General Register Office, WILLIAM FARR,
Somerset House, Chairman of Central Committee.
London, March 12, 1875.

MISCELLANY.

M. WALLON, the French Minister of Public Instruction, has appointed M. G. Pouchet, the son of the celebrated advocate of spontaneous generation, to fill the room of M. Paul Bert, professor of physiology to the Sorbonne, as the latter, being a member of the National Assembly, cannot attend to his professorial duties.

A MEDICAL FICTION.—A curious work of fiction is now in course of publication at New York. It is entitled *Medizinische Novellen*, and is by Dr. Bernhard Segnitz, a German physician. These tales, which will recall the memory of Mr. Warren's *Diary of a late Physician* to some of our older readers, relate to measles, catalepsy, icterus, delirium tremens, intermittent fever, and chloroform suicide. The subjects certainly appear unpromising, if original, as foundations for effusions intended to amuse our lighter hours. The lovers of 'sensation,' however, will find in these volumes abundant matter to their taste. For instance, in the story on delirium tremens, the heroine is the subject of the disease; she is a person of princely blood, who proposes marriage to her cousin, fires a revolver at him when he declines the honour, and buries her grief in libations of brandy. *Mania a potu* results, of which the doctor cures her, and by the personal influence of the prince regent, her cousin accepts her hand, and they are presumably happy ever afterwards.

CLAY EATERS.—Herr F. K. Leusinger, in his *Travels on the Amazon and Madeira*, speaks of the appetite for clay shown by the inhabitants of the virgin forests traversed by these rivers. This propensity is common to all ages from childhood to old age, and is so strong that the prospect of a miserable and dreadful death cannot withhold them from satisfying this morbid taste. It is not uncommon to see amongst the negroes employed on the coffee and sugar plantations an unfortunate being working in the heat of the day with an iron mask over his face; this is a clay-eater, whom it is sought to save from his deplorable propensity by this means, and who is never allowed to take off his mask except under proper superintendence. This taste, however, is not peculiar only to man in these regions. Many animals, with the exception of the jaguars, and even birds also show it, of which advantage is taken for hunting purposes. The hunter has only to place himself in ambush near a clay pit, on a moonlight night, and he will soon have

plenty of sport among the wild boars and roe-deer, as well as the jaguars, attracted, not by the clay, but by the desire for a living prey.

NUMBER OF INQUESTS.—The *British Medical Journal* for March 13 calls attention to the number of inquests held at the present time. It remarks that the condition of life in England has so completely changed since the office of coroner was instituted and the statutes regulating it became law, that it has become a moot question whether a good many unnecessary inquests are not now held. The object of the inquests was undoubtedly to discover crime, with the object of punishing it, and with a view to its prevention. A few centuries ago, when the state of science was far different from what it is now, 'sudden death' was considered a sufficient ground for the holding of an inquest. Dr. W. Farr, in a letter on the causes of death in 1872, published in the last annual report of the Registrar-General, says: 'The mere fact that death is sudden is a ground for medical inspection, but not necessarily for an inquest; and there are many violent deaths of which a medical inspection may ascertain the cause without moving the apparatus of the inquest, there being no more suspicion of crime in such cases than there is in deaths from fever, pleurisy, or consumption.' In 1872, the number of inquests held in England and Wales was 25,705, at a cost of 78,535*l.*, or rather more than 3*l.* per inquest. The general proportion of inquest cases to total deaths has exceeded 5 per cent. in each of the three last years, 1872-4. It appears, therefore, that an inquest is held in one of every twenty deaths that occur. In the eighteen large English towns for which weekly returns are published by the Registrar-General, the percentage of inquest cases to total deaths during 1874 ranged from 3·3 and 3·6 in Bradford and Hull, to 7·2, 7·6, and 7·9 respectively, in London, Birmingham, and Manchester. The average proportion in the eighteen towns was 6·3 per cent., whereas in the whole of England and Wales it was rather more than 5 per cent. It is natural that the proportion of inquest cases in towns should exceed that in rural districts, in consequence of the greater frequency of deaths from violence; but this will not explain the wide difference in the proportion of inquest cases in the large towns above mentioned. In Bradford and Hull, the percentage of inquest cases exceeded that of deaths from violence by only 0·8 and 0·5; whereas in London the deaths from violence were 3·6, and the inquests, 7·2 per cent.; in Birmingham, 4·1 and 7·6; and in Manchester the violent deaths were 3·1, and the inquest cases 7·9 per cent. Assuming that inquests are held in all cases of death from violence, in each seventy-nine inquest cases in Manchester, the cause of death in forty-eight was other than violence; whereas of seventy-two inquest cases in Hull, only ten proved to be deaths from natural causes. The question to be answered is, Are too many inquests held in Manchester, or too few in Hull? Such an anomalous state of things as to the proportion of inquests held is decidedly undesirable; and it would be well if some code of regulations could be drawn up, or law enacted, to secure greater uniformity of system among coroners, without detracting from the dignity and independence of the office by too far weakening its discretionary power.

THE COMPARATIVE DURATION OF LIFE IN MEN AND WOMEN.—Mr. Cornelius Walford, F.S.S., made some interesting statements on this subject in a paper which he read on February 22, at the Institute of Actuaries. Dr Halley, of Breslau, who wrote in 1693, evidently supposed both sexes to be equally long lived. Maitland, in his 'History of London,' published in 1739, was of opinion that the old idea of there being more females than males in the world was a fallacy, the christenings of boys within the bills of mortality being 3 per cent greater than those of girls. Kerseboom, in his investigations into the mortality of Dutch annuitants in 1742, separated the male from the female lives; but he does not appear in his tables to have noted any difference in their relative longevity. Four years later, M. Deparcieux, in his observations on

the nominees of French tontines, lays it down that the 'expectancy of life' is greater in the female than in the male at all ages; but he does not determine the precise ratio. It was the 'Equitable' society, which in 1762 first approximated to the truth of the matter, by making a distinction of rates of premium for each sex, and taking no female lives under fifty years of age as insurers except at special rates. Dr. Price, in 1771-3, speaks incidentally of 'the greater mortality of males as compared with females' as being generally acknowledged; and Brand, speaking of the 'Amicable,' says that in it 'the life of a woman as compared with that of a man, is of the same proportion as two to one.' Mr. T. Chester, in 1783, asserted that the difference between male and female lives was in 'favour of the latter; and the same rule was laid down in some Swedish tables constructed by Dr. Price about the same date. Mr. Walford quoted the statements of the Carlisle tables, of the Parliamentary Committee of 1827, of M. Quetelet, of Messrs. Bailey & Day, of Mr. Finlaison, etc., as on the whole showing that from first to last the expectancy of life is greater in the female than in the male sex. The same result was arrived at from certain statistics of uninsured lives among the higher and wealthier classes, which were obtained and tabulated in 1874; a result which may be expressed in the following terms—viz., that 'at every age the aggregate mortality from birth up to such age is greater among males than among females; and that out of the same number of each sex, born alive, fewer males than females survive to any given age.' On the whole the above statement is confirmed, added the reader of the paper, by the experience of foreign countries, both on the Continent and in America. But this must be understood with some qualification; for, while the expectancy of life is greater generally among women than men, most offices find that of a given number of insured lives more women die than men. This, however, was to be accounted for by the fact that whereas male insurers are drawn from all classes, only one small class of females, as a rule, seek to insure their lives—namely, women in a state of actual or expectant pregnancy; and here, as he believed, lay the secret of the anomaly which had been observed.

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The London Medical Record.

WEDNESDAY, APRIL 7, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

MEYNERT, HUGUENIN, AND LUYA ON THE MECHANISM OF THE CENTRAL NERVOUS SYSTEM.*

In the past few years, two notable attempts have been made to declare the mechanism or interior plan of structure of the central nervous system. The first in order of time was that of Luys, the title of whose work will be found below, and the last is that of Professor Meynert, of Vienna.† Both have had, and now have, students of and adherents to their views. Especially is this true of the latter. The work of Dr. Huguenin, of Zürich, the title of which stands at the head of the list, is by one of Professor Meynert's students. But he is something more than a student. He would seem to be a critical expounder of the system of his master, from whose views he has not hesitated, in many respects, to dissent. It is to a brief survey of the contents of the first few chapters of this work that we would, in this article, more particularly invite the attention of the reader. But this will hardly be possible without describing in outline the system of Luys, as well as Meynert's, whose system is adopted in the main by Huguenin.

Luys followed the plan of making a vast number of sections of the prepared nervous substance of all parts of the central nervous system, and of studying them under low powers of the microscope, in due order, and then of combining the items of information obtained in this way, so as to form a scheme of distribution of the histological elements of the same. The following is an outline of his system.

First, we have the masses of the central nervous

* From the *Chicago Journal of Nervous and Mental Disease*.

† I.—Dr. Gustav Huguenin: *Allgemeine Pathologie der Krankheiten des Nerven-Systems*. Ein Lehrbuch für Aerzte und Studierende. Von Dr. Gustav Huguenin. I. Theil: Anatomische Einleitung. Mit 130 Holzschnitten. Zürich: 1873. 296 pages. (General Pathology of Diseases of the Nervous System. A Manual for Physicians and Students. Part I. Anatomical Introduction, etc.)

II.—Dr. Theodor Meynert; 1. Brain of Mammals. Stricker's *Handbook of Histology*. English Translation. Page 650-766.—2. Anatomie der Hirnrinde u. ihrer Verbindungsbahnen mit den empfindenden Oberflächen und den bewegenden Massen. Leidesdorf's *Lehrbuch der Psychischen Krankheiten*. Erlangen, 1865. Pages 45-73. (Anatomy of the Cortex of the Brain and its Mode of Connection with Sensitive Surfaces, and the Apparatus of Motion; in Leidesdorf's *Manual of Mental Diseases*).—3. Beiträge zur Theorie der Maniakalischen Bewegungs-Erscheinungen nach dem Gange und Sitze ihres Zustande kommen. (*Archiv für Psych. u. Nervenkrankheiten*, Band ii. Heft 3, p. 622, 1870.) (A Treatise on the Theory of Maniacal Motor Phenomena, according to their course, seat, and the conditions on which they depend, etc.)

III. M. J. Luys: *Recherches sur le Système Nerveux Cérébro-spinal, sa Structure, ses Fonctions, et ses Maladies*. Par J. Luys. Paris, 1865. Atlas de Quarante Planches.

system, the ganglia, variously divided, consisting chiefly of nerve-cells. Belonging to these, and completing the nervous apparatus, we have, according to M. Luys, four great systems of nerve-fibres, besides simple commissural fibres: two of them are called converging. These are called respectively inferior and superior. The former includes the whole of the so-called sensory peripheral nervous system. All cerebral and spinal sensory nerves (not to mention the sympathetic) throughout, belong to this class, both in the spinal cord and out of it. From all parts of the body, with few exceptions, fibres of this class converge on the spinal cord and ganglia at the base of the brain, more particularly the latter. This, as we have said, is the inferior converging system.

The superior converging system consists of all those fibres which begin in the cells of the cortical substance of the hemispheres, and converge toward the base of the brain on certain ganglia there situate.

As the inferior converging system of fibres is destined to convey impressions from all or nearly all non-nervous parts of the body—impressions physical in their nature or origin—so, on the other hand, the superior converging system of fibres is destined to convey impressions made at the peripheral end of this system of fibres, perhaps mental instead of being physical in their nature and origin. Both these systems converge at the base of the brain. Both systems at their periphery have peculiar forms of apparatus, suitable for receiving the impressions adapted to them. On the one hand, we have the peripheral apparatus of vision, hearing, smell, taste, touch, and so on; on the other the apparatus of thought, lodged in the cortex of the brain.

The other two are the diverging systems of fibres, also called inferior and superior. The former—the inferior diverging system of fibres—proceeds from the motor cells of the cord and ganglia at the base of the brain, and leads outwards from these centres towards the periphery of the body. The motor fibres to the muscles, and to all glandular structures whose actions are normally influenced by the nerves, belong to this system.

The latter—the superior diverging system of fibres—leads from certain of the ganglia at the base of the brain upward to the cortical substance of the hemispheres. The fibres of this system are destined to convey impulses or impressions from the great sensory ganglia upwards to the cells of the cortical substance, which latter are in this way excited to action, just as truly as the motor-muscular nerves convey impressions to the muscles that make them act.

To these must be added certain tracts of commissural fibres like those of the corpus callosum.

Such, in broadest outline, is the system of Luys. To carry a view of it out into detail would not be possible here, nor consistent with our present plan, the aim in which is to give simply an outline.

The work of Dr. Huguenin opens with a short but very excellent chapter on the 'Development of the Brain and Spinal Cord.' The next is devoted to a 'General Scheme of the Structure of the Brain and Spinal Cord.'

This is the part of the work to which attention is chiefly invited in this notice, in connection with corresponding parts of the memoirs cited from Meynert. If we should take the brain and remove the hemispheres, excepting the ganglia at their base, and then should remove the cerebellum, we would have

left above the spinal cord proper, what is called in the system of Meynert, the 'brain-stem' (*Hirnstamm*), or in more common language, the 'peduncles' of the brain. It includes, in the system of Meynert, the crura cerebri, the corpora striata, the thalami optici, corpora quadrigemina, and the whole of the medulla oblongata. Spread out above this is the 'brain-mantle' (*Hirnmantel*) or cortical layer of the cerebral hemispheres.

After making the ordinary macroscopic distinction of the nervous substance of the nerve-centres into the white and grey, Dr. Huguenin follows Meynert in dividing the grey matter of the central nervous system into four 'categories' or groups. They are as follows.

1. 'The superficial grey substance of the hemispheres out of which, collectively, the descending fibres take their origin.

2. 'The grey substance of the great ganglia at the base of the brain. Here it is to be remarked that these masses are to be divided into two categories, or those which stand in connection with sensible or sensitive surfaces, and those which do not. This lays down the radical functional distinction to be made between the ganglia of the second category, viz., motory and sensory.

3. 'The so-called "grey tube" or canal (*Röhrengrau*), of Meynert, an immediate production of the "medullary tube" and the "brain-sac." It invests the central canal of the brain and spinal cord, which extends from the infundibulum through the aqueduct of Sylvius, and the space (*calamus scriptorius*, *Rautengrube*) on the posterior surface of the medulla oblongata, corresponding to the fourth ventricle, and so on through the whole length of the central canal of the spinal cord, and is known as the grey substance of the medulla oblongata and spinal cord.

4. 'The grey substance of the cerebellum and its appendages, which has manifestly a structure wholly peculiar, and is devoted, without doubt, to peculiar functions.

'These different categories of grey substances stand connected together by means of a vast number of bands of nerve-fibres,' etc. To understand Meynert's scheme of the nervous system even in its outline, it is necessary to fix these categories of grey nerve-substance clearly in mind.

Dr. Huguenin next proceeds to declare the great systems of fibres which, according to Meynert, connect the masses of grey nervous substances with each other in the order of their importance, and in view of the functions they are known or supposed to subserve.

To survey the above-mentioned system of fibres we must begin with the first category of grey matter, or the cortex of the brain.

Extending from the cells of every part of the inner surface of the cap formed by the cortex of the cerebral hemispheres, are vast numbers of fibres, which are divided at once into two classes :

1. Those which serve to connect different parts of the same hemisphere together, or of the opposite hemispheres, and which are called the 'association or arch system,' (*Bogensystem*). These fibres exist for the purposes of securing concerted and harmonious action between different parts of the brain. They are the commissural fibres of our older works.

2. Those which do not terminate as they began, in the cells of the cortex of the hemispheres, but converge at the base of the brain on certain ganglia there situate, in the cells of which ganglia the fibres

in question chiefly terminate. These fibres include the superior converging and diverging systems of Luys. They constitute the 'projection-system' No. 1 of Meynert. The fibres of this vast 'projection-system' are wholly confined to the interior of the cerebral hemispheres, and constitute what is called ordinarily the white or medullary matter of the hemispheres.

At one end, as we have seen, these fibres terminate in the cells of the cortical substance of the brain ; at the other, with certain exceptions, in the great ganglia at the base of the hemispheres.

Leaving the grey substances of the first category, or cortex of the cerebral hemispheres, we will descend to the great ganglia at the base of the brain, or category of the second kind. These are not only the lower termination of the fibres of the first projection-system, but they constitute the origin of the fibres of projection-system No. 2. The number of fibres composing this second system is very small as compared with that of the first system already described. Hence these ganglia of the second category constitute a 'reduction-region' (*Reductionsgebiete*), or a medium for reducing the number of fibres that shall pass downward into the medulla oblongata to constitute the second projection-system. In other words, the fibres which descend from the cortex of the brain, and are projected into the upper surface of the great ganglia at the base of the brain, terminate as a rule, with certain exceptions, in the cells of these latter ganglia. It is only by means of the cells of the ganglia (of the second category) that the fibres of the first projection-system become connected with those of the second projection-system. Hence the ganglia of the second category are called 'interruption-masses' (*Unterbrechungsmassen*). The fibres which enter the ganglia in question are interrupted in their course as fibres by the interposition of cells. The cells receive a vast number more fibres from the first projection-system than they give off to the projection-system No. 2. Hence this region, as already remarked, has been called by Meynert, a 'reduction-region' (*Reductionsgebiete*), etc.

The ganglia of the second category are the thalamus opticus (*Sehhügel*), corpus striatum (*Streifen-hügel*), the nucleus lentiformis (*Linsenkerne*). These three ganglia lie in pairs, separated by the space called the third ventricle. Finally we have the corpora quadrigemina (*Vierhügel*), lying behind the first mentioned ganglia, and, unlike the others, closely united in the middle line.

The second system of nerve-fibres, (projection-system No. 2,) springs from the aspect of the ganglia, just mentioned, opposite to that of the cortex of the cerebral hemispheres. Some of the fibres of projection-system No. 2, terminate in various points in the medulla oblongata, such as the centres for the motor nerves connected with the special senses, or for the control of peculiar muscular groups, such as the centres for the facial, or hypoglossal, or pneumogastric, or other nerves ; or in various parts of the gray central substance of the spinal cord (*Höhlengrau*), all the way from the medulla oblongata to the lower end of the spinal cord.

The great mass of the fibres of this second projection-system, after they depart from the ganglia at the base of the brain, descend, under the name of the crura cerebri or peduncles of the cerebrum. At this point, a capital feature of Meynert's system comes in. He divides the fibres of projection-system No. 2 into two classes : first, those which

arise in the nucleus lenticularis and the corpus striatum, and convey the orders of the will downward toward the muscles; and, second, those fibres which proceed downward from the thalamus optici and the corpora quadrigemina, and do not convey the orders from the will, but reflex impulses, of which the ganglia just mentioned are the seats.

These two great divisions of the 'brain-stem' (*Hirnstamm*), are called respectively, the 'basis cruris cerebri,' and the 'tegumentum cruris.' Let it be remembered these two divisions of the 'brain-stem' contain the fibres, both sensory and motor, of projection system No. 2. The fibres of the 'basis cruris cerebri,' which convey downward the orders of the will, from the corpus striatum and ganglionic masses associated with it, as they pass downward, terminate below, as already said, some of them in special motor centres, lodged in the pons Varolii and medulla oblongata, to be switched off in various directions, while the bulk of them pass lower down, and decussate, probably, in the medulla oblongata, and enter into the opposite lateral column of the cord, to terminate finally in the cells of the gray matter of the spinal cord, at various points, even down to its lower part it is probable.

The fibres that compose the 'tegumentum cruris,' pass downward also, and as they do, partly, at least, enter the antero-lateral column of the spinal cord of the same side, and, in part, cross over in the medulla oblongata, to the opposite half of the cord. They terminate, at various heights, in the grey matter of the medulla oblongata and cord. Whether the fibres descending from the 'basis cruris' and the 'tegumentum,' terminate in different tracts of the grey matter of the cord, is still, in a measure, a matter of inference. So much, then, for the fibres of projection-system No. 2, which serve to connect the great ganglia, at the base of the brain, with the small ganglia in the pons, medulla, and the grey central matter of the whole length of the spinal cord.

We repeat, that the fibres which pass down in the basis cruris cerebri, in the manner described, convey the orders of the will on their way from the cortical substance of the hemispheres toward the voluntary muscles, and that the fibres which pass down in the 'tegumentum cruris' become the conductors of reflex impulses, which are excited by sensory impressions, transmitted to the optic thalami and corpora quadrigemina by means of the cranial and perhaps other sensory nerves.

So much, in brief, as to the disposition of the fibres composing projection-system No. 2. Next in order, we have the projection-system No. 3. It is composed of all those fibres which connect the grey matter of the spinal cord and medulla oblongata with the non-nervous, motor, and sensory parts of the body, such as muscles, membranes, etc., and which takes the name, commonly, of the peripheral nervous system. It embraces both the sensory and the motor nerves of the whole body, excluding, perhaps, some of the nerves of special sense.

A few words must be said as to the grey matter of the spinal cord. In the opinion of Meynert, the grey matter of the cord had originally the form of a prolonged tube (*Höhlengrau—Röhrengrau*), of course hollow in its interior. This tube extends from the lower end of the cord, upward to the medulla oblongata, at which point it is laid open, from behind or above, so as to display its interior, constituting what is called the floor of the fourth ventricle, and thence upward

and forward, along in the base of the brain, through the aqueduct of Sylvius and the third ventricle, lining its sides and floor, and as far forward as the infundibulum, where it terminates. This tube receives the fibres of projection-system No. 2, and gives off the fibres of projection-system No. 3. About its upper or cephalic end, and in close relations therewith we have grouped the special ganglia of the second category of grey matter, already described.

The fibres of projection-system No. 3 exceed in number those of system No. 2, in a degree quite equal to those of projection-system No. 1. The grey matter of the 'medullary tube' constitutes a region in the central nervous system, for the multiplication of nerve-fibres, in contrast with the ganglia of origin of the fibres of the second projection-system, which constitute, as we have seen, a 'reduction-region' (*Reductionsgebiete*).

To restate, briefly, the general plan of structure of the central nervous system, as set forth by the school of Meynert: We begin with the grey matter (cells) of the cortex of the cerebral hemispheres, and (putting the association-system out of sight for the moment) find a great system of nerve-fibres rising therein, to converge on certain great ganglia at the base of the brain, in which ganglia the fibres, as a rule, terminate, by becoming connected with nerve-cells. The fibres are thus interrupted in their course, and, by this means they are enabled to form, through the agency of the cells, a complicated system of connections with special groups of nerve-cells in various directions. The ganglia in which this interruption of the continuity of fibres is effected are called, in Meynert's scheme, 'interruption-masses' (*Unterbrechungsmassen*). From these ganglia a second set of fibres spring, which pass downward in the basis cruris and tegumentum, to terminate in the cells of the grey medullary tube, which occupies the axis of the spinal cord and parts above. This is projection-system No. 2.

Then the cells of the grey medullary tube give off the peripheral nerves, both sensory and motor, to constitute the projection-system No. 3.

Now we come to projection-system No. 4, or that which connects the grey matter of cerebellum (fourth category of grey matter), with the three other categories of grey matter, namely, the cortex of the cerebrum, the ganglia at the base of the brain, and the grey medullary tube of the cord, etc. As regards the cerebellum, Meynert looks upon it as an apparatus wholly peculiar, as indicated by its position and structure, and deserving a separate consideration. The fibres that pass or are projected out of the cerebellum are divided into three pairs of bundles, called crura or peduncles, which, as is well known, are named according to their respective positions—superior, middle, and inferior. The former connect the cerebellar hemisphere of one side with some part, at present unknown, of the cortex of the hemispheres of the opposite side. The middle crus or bundle passes forward into the pons Varolii, where its fibres enter into connection with nerve-cells that belong to the second category of grey matter at the base of the brain, and the third bundle passes forward and downward to terminate in the cells of the third category of grey matter, represented in the grey medullary tube of the cord. This third bundle from the cerebellum, before it enters the cord, divides into two parts. The first (corpus restiforme) becomes continuous with the anterior column of the spinal cord, perhaps of the opposite side, while the second

(funiculus cuneatus and gracilis) by a very circuitous course, becomes continuous with the posterior column of the spinal cord.

So much for the system of Meynert in outline, not only as set forth by himself, but by Dr. Huguenin, who adopts Meynert's views in the main.

As regards the word 'projection,' as applied to the different classes of fibres, it would seem to have one of two significations, perhaps both. It either has reference to the fibres themselves as being 'projected' from the masses of grey matter in which they take their origin, or, what is more likely, it has reference to the centripetal impulses, which, made at the sensory surfaces, pass inward until they arrive at the cortex of the cerebral hemispheres, against which they are finally 'projected,' either to be retained there through some incidental material change in the cortex, or to be reflected back again towards the periphery, for purposes of motion.

As regards the function of the cortex in general, Meynert holds it to exist—at least we so understand him—for the purpose of storing up in some way the ingoing 'impressions' projected into it. He does not consider it a part of the nervous system, for the origination of impulses from the activity of the mind and of communicating the same to other parts of the nervous system.

There is one point in this connection that we will mention as possibly having some bearing on this subject.

Meynert holds it as at least probable that the retina of the eye, as well as the olfactory bulb, is essentially a detached portion of the cortex of the cerebral hemispheres. If so, the way in which these portions of cortex receive their impulses may throw some light on the source of the impulses that arise in the cortex of the hemispheres. Take the retina for example. In this case, it would seem, if it is to be regarded as the analogue of the cortex, that its impulses are received directly from the outer world, light being the agent for producing them. It takes cognisance of the wonderfully delicate pulsations of the 'ethereal medium,' of which light is supposed to be a result. The retina does not exist for 'storing up' the pulsations in question, but for receiving and transmitting them. If this is so, why may we not infer that the cortex is similarly constituted? But, if so, where do the impressions come from that are to be compared with those made on the retina? Some would answer readily enough, from the free and independent activity of the mind, the will, but not so Meynert. But we must pass by reflections like the above, to be indulged at another time, if at all.

It is entirely apart from our present purpose to enter at this time more into details, to do which satisfactorily would require a long series of articles. For the views of Meynert are most carefully worked out, in view, not only of the nature and visible disposition of the histological elements of the nervous system, as seen by the microscope in man, and all classes of lower animals duly compared, but in view of the outer form and gross appearances generally of the nervous system, of its mode of development, of the results of physiological experiment, and of pathological observation. It may be readily imagined that where so much remains yet to be done, and where materials so heterogeneous have been employed, that the system embraces in its various parts many things uncertain and hypothetical, and that will have to be modified or rejected with the

advance of knowledge. But no one would seem to be more sensible of this state of things than Professor Meynert himself. Of all the attempts thus far made to declare the inner architecture of the central nervous system, this of Meynert's is certainly the most noteworthy and comprehensive.

To what extent it is successful, will shortly be shown by the practical use that can be made of it in analysing and interpreting the problems of pathology that daily arise in clinical experience. But this test of utility is already being applied by Meynert, and is promised soon on his part by Dr. Huguenin, to whose practical work on diseases of the nervous system the monograph whose title stands at the head of this article is simply the 'anatomical introduction.' Hereafter we shall fully and plainly consider Meynert's views, in their practical as well as scientific relations.

In this notice of the outlines of his system, we have endeavoured to meet what has seemed to us a practical need on the part of many readers, who seem to have found it difficult to comprehend the somewhat novel and abstruse views of the great Vienna neurologist, which seem to us to have a high degree of practical importance when they are once understood.

ON A CASE OF HABITUAL ETHER INHALATION. BY DR. C. A. EWALD, FIRST ASSISTANT IN THE UNIVERSITY CLINIC, BERLIN.*

The case which I am about to bring before you must not be regarded as an observation of special scientific value, although we have endeavoured to make use of it in explaining some questions which lie before us; but rather as a kind of curiosity, an *unicum*, which, as far as my knowledge extends, has not hitherto been described, and is therefore worthy of being briefly communicated. There are, it is true, records in literature of a few cases in which large quantities of ether have been inhaled for a longer or shorter time; but in none of them was the quantity consumed so great as in our case, and in all of them the ether was used for therapeutic purposes. Moreover, these cases have not been sufficiently closely observed in their medical bearings.

About the middle of last month, a man, aged thirty-two, was admitted into the University Clinic, complaining of general *malaise*, weakness, loss of appetite, and muscular tremors. With the exception of slight enlargement of the liver, nothing wrong could be detected by examination; but his whole aspect was so indicative of misery, that he would have been put down as one of the wretchedly poor, were it not for the unusual contrast between his aspect and his distinctly formed speech, and for the fact that (as was at first thought) there was a remarkably strong smell of alcohol in his breath. The patient, however, explained that he did not smell of alcohol but of ether; and the peculiar sweetness and mildness of ether-vapour was then easily recognised, notwithstanding its strength. We learned that we had before us an unhappy individual, who, having begun some years ago to inhale ether, had become addicted to the habit to such a degree that he had fallen from a respectable station to his present condition,

* From the Medical Clinic of Medical Counsellor Frerichs. Read before the Berlin Medical Society, February 3, 1875. (*Berliner Klinische Wochenschrift*, March 15, 1875.)

and was extensively known in Berlin by the characteristic name of 'Ether-Fritz.'

In his earlier days, the patient was a temperate man, free from excesses of any kind. Occupied principally with philosophical and æsthetic studies, he seems to have had a greater inclination than was advisable to meditate on theologico-mystical subjects. In the meantime, he passed his school and university examinations with honour, and had, according to all expectation, a good prospect for the future. A work by Dieffenbach then fell into his hands, in which the action and use of ether in medicine were described, and the condition of narcosis was depicted in such glowing colours, that a fantastic mind might well expect something quite extraordinary from it. Among other things, it is said that the ether-narcosis is capable of facilitating to an extraordinary degree the creative power of the mind (*das geistige Schaffen*) and quickening its productivity; and so our patient thought that he had found in ether the means of fertilising his poetic fancy. In December, 1865, he first endeavoured to obtain the desired result by inhaling about two or two-and-a-half ounces of sulphuric ether, although he was quite well aware of the risk which he thereby ran. He lay alone on the sofa in his room, with a little bottle of ether, and a lighted candle near him; and inhaled the ether from a pocket-handkerchief. He immediately lost consciousness; and had a host of very lively illusions, principally consisting, it seems, of theologico-mystical conceptions, in which, however, as is the case in opium- and haschisch-smoking, there was a complete disregard of matter, time, and space. He believed that he had travelled through whole worlds and had lived for an infinity of time; and yet, when he awoke, his candle showed that he could scarcely have been narcotised a quarter of an hour. The ether-bottle was empty, although he did not remember taking it more than once in his hand. There was no vomiting; nor did he perceive any uncomfortable feelings either then or at any subsequent time after the inhalation of ether. He was thus not led to the use of ether by bodily pain; but he always used it for the sake of the narcosis itself, as a pure luxury, and thus his case differs from all that I have been able to find in German, English, and French literature. Unfortunately he was not satisfied with the result of this first attempt, for the stupefaction passed off at the moment when he seemed to have nearly reached the goal of his wishes. Naturally he repeated the experiment. The dream-world, however, into which he lulled himself, was not so splendid, not so rich in colours and images, as that of the first narcosis; and, however often he endeavoured to conjure it back by larger and larger doses, it would not reappear. The experiment soon became a habit, the occasionally made attempt an irresistible impulse, resembling that animal desire which constantly leads the drunkard to again seize the glass; and his original longing for the sublime and infinite became smothered in the desire for a stimulant, which at length assumed all the characters of an ordinary sensual passion. At first he only took the ether in his room; but soon he had no rest out of it. Holding a handkerchief saturated with ether before his mouth and nose, he staggered through the streets, running from one apothecary to another, and buying ether in small quantities, for his disordered circumstances no longer allowed him the means of procuring it in

sufficient doses to produce complete narcosis. At last he came to consume two or two-and-a-half pounds of ether in a day. A terror to his fellow-lodgers, who gave him notice to leave his dwelling on account of the smell of his breath, a dreaded and notorious visitor of the apothecaries, many of whom were obliged to close their doors against him, he became a homeless man, spending his nights in the open country, in new buildings, in dens, and in the custody of the police. No wonder that the results of such a life declared themselves in his physical condition, and that he applied to the Charité Hospital, in order to find there the means of renewing his reduced powers.

Divested of prolix philosophical comments, of numerous romantic episodes, and, I believe, of a good deal of colouring, this is an epitome of the patient's course of life, as he gave it in reply to my inquiries. It was now our part to test the truth of his assertions as far as possible. He is a middle-aged, lean man, with delicate muscles and skin; a small frequent pulse, moderate enlargement of the liver, frequent trembling of the limbs, slight injection of the conjunctivæ; but beyond this, his state seems in every way normal. There is nothing in his speech indicating that we have to deal with a man whose mind is impaired; his memory has not suffered; his thoughts are clear; his style flowing and even elegant; an unsteady and timid look, a quiet subdued behaviour, may fairly be attributed to the consciousness of his condition. Chronic indulgence in ether appears thus to lead, both externally and internally, to a condition resembling chronic alcoholism.

The nature of his hallucinations agrees completely with what I have found described in literature concerning ether and the long-known narcotics—opium, haschisch, betel-nut, coca, etc. That which is common to all of them is the removal from the real to the ideal; the individual differences depend on the sphere in which the individuals are accustomed to seek their ideal, on their power of imagination, and on their habits. The creation of phantasms is thus determined by the association of the individual consciousness; and in our patient this is sharply defined within its narrow limit. The character of his hallucinations was from the first, and has always remained, exclusively mystic, free from any erotic or other admixture, and has thus remained dependent on his prevailing disposition. As with other narcotics, so even more with ether, the disposition to hallucinative action appears to present individual differences; and a susceptibility of this kind, such as our patient has possessed in a more or less distinct form from the first day till now, may well be attributed in part to an alienated direction of his disposition or development—to a slight psychosis. This he has himself acknowledged.

With the tests of the truth of his statements, we endeavoured to combine our examination into several questions on the influence of ether on the vascular system and on secretion: and we concluded to subject him to a state of narcosis—which, indeed, he earnestly desired; for it was to be expected that he would require extraordinarily large doses, and we hoped that the physiological action of the ether would be especially distinct. Of chloroform it has long been known that, when inhaled in large doses, it produces mellituria (Reynoso, Sabbarth, etc.). A similar assertion is made regarding ether by Claude Bernard in his *Leçons sur les Substances*

toxiques; where he says that, after injecting ether into the portal vein or introducing it into the stomach of rabbits, he found sugar in the urine. Nothnagel observed some time ago, that the subcutaneous injection of chloroform was followed by the discharge of bile-pigment and blood in the urine. On account of the great similarity of action between ether and chloroform, it was *à priori* not improbable that ether would produce a similar condition. According to many authors, especially American, the number of respirations is increased, the heart's action is increased, the pulse becomes fuller and larger; and sphygmographic observations have been made by the American Morgan. I pass aside, as undisputed, the influence on the temperature and on the pupils. In order to produce complete narcosis, as indicated by loss of reflex irritability in the conjunctivæ, we gave, in thirty-three minutes, 280 cubic centimètres, or 207 grammes (about $7\frac{1}{3}$ ounces), of ether; administering it by means of an ordinary chloroform-inhaler, and preventing evaporation into the air as much as possible by applying cotton-wadding. But even with this enormous quantity we were able to produce only a momentary effect; for immediately on the cessation of the inhalation the patient came to himself, answered short questions correctly, walked steadily on the floor of the room, and, with the exception of some flightiness and confusion, appeared to be in quite the same state as before the inhalation. The narcosis presented nothing special, and resembled in all respects the sufficiently well-known phenomena presented by habitual drunkards during the stage of stupefaction. The patient, however, at first had an expression of extraordinary pleasure on his face, and inhaled the ether-vapour with real eagerness; he afterwards assured us that he had had a pleasant narcosis. Five minutes after commencing the inhalations, he was confused; in seven minutes, when 150 cubic centimètres (about four ounces) of ether had been used, the pupils became widely dilated, this state being apparently not preceded by contraction. The pulse, hitherto weak and low, became full and strong, and remained so as long as the narcosis continued, increasing in frequency at the same time from 72 to 80. The restlessness of the patient prevented a sphygmographic curve from being taken. The respirations were deep and increased from eighteen to twenty-five in a minute. After twenty-five minutes, violent hiccup set in, but ceased, as did also the dilatation of the pupils, as soon as the inhalation was discontinued. The urine passed immediately before and after the experiment was of a pale yellow colour, and quite clear; of specific gravity 1.009 and 1.006, without anything abnormal, and having no smell of ether; it was subjected to distillation without result.

It is obvious that only a certain value is to be attributed to this negative result. Even if we must set down a part of the ether to the account of habit (and a certain amount of tolerance on the part of the organism is doubtless to be attributed to this), still the amount greatly exceeds the highest known to have been taken in other cases—eighty or ninety grammes. The patient was indeed in the habit of taking enormous quantities in the course of the day; but a large portion must have generally escaped into the air, and, as it seems, it was but very rarely that he was completely narcotised. We convinced ourselves of this by allowing him to etherise himself. He placed his handkerchief over his mouth

and nose, laying a pencil and a piece of paper near him to note down any of his thoughts, and from time to time poured out fresh ether, so that he pretty soon fell into a state of intoxication, during which he talked extravagant nonsense, danced about the room, laughed, and appeared to be very much pleased; but his condition was far removed from narcosis in its ordinary sense. After he had used about 130 grammes of ether in the course of an hour and a half, we made him desist; otherwise he would have probably passed the whole day in the same manner. It was, however, not to be expected that this slow and often interrupted kind of absorption should exert any distinct influence on tissue-change. The pulse, as we now ascertained by the sphygmograph, was not once changed; nor was there any alteration in the urine. I must, therefore, regard the assertions regarding the presence of sugar, bile-pigment, and blood in the urine, at least as far as the observations before us go, as not applicable to man.* The air expired by the patient, at the end of eight days after the last experiment, still had a strong smell of ether.

The patient was treated by restoratives and cold baths. With these we combined absolutely large but probably relatively small doses of extract of cannabis Indica, so that his nerves might not be too abruptly deprived of their accustomed stimulus. It was interesting to observe that the susceptibility to this drug was not lost. On the first day we gave too large a dose, and towards the evening the patient had phantasms in the form of panoramic buildings, landscapes with temples, waterfalls, etc.; from these he could at any moment withdraw himself, and have again before his eyes the ward of the Charité Hospital. This agrees perfectly with other observations on haschisch-smoking. We at once reduced the dose, without allowing further toxic symptoms to be produced.

Such are the experiments which we considered ourselves justified in making on the patient. Although there is but little prospect that, when at liberty, he will throw off his ordinary disgrace, we thought that we ought not to give further countenance to his habit. The gain is not great; and when we look closely into the matter, the case is only one of those which fall under our notice by hundreds and thousands in other shapes; illustrating the power of emotion, and of the instinctive longing of human nature to raise it above the sameness of every day life by the use of luxuries of some kind. But the whole world smokes tobacco; 400 millions of men stupefy themselves with opium; 300 millions eat and smoke haschisch; while our patient is the first in whose hands the anæsthetic power of ether has been misused to gratify a passion for intoxication.

It is, if you will, a new and probably unique form of drink-madness; but the extraordinary character of the case leads me to believe that it may not be thought unworthy of this brief exposition.

A. HENRY, M.D.

* In five rabbits, which I poisoned with increasing doses of ether (six to sixteen cubic centimètres, partly injected under the skin, partly given by the mouth), the bladder contained in each case only a few drops of urine, in which no sugar could be found. In one of the animals, a few red blood-corpuscles were found in the urine. The animals died from an hour to an hour and a half after the poisoning.

ANATOMY AND PHYSIOLOGY.

RANVIER ON THE PREPARATION OF BONY TISSUE WITH BLUE ANILINE DYE INSOLUBLE IN WATER AND SOLUBLE IN ALCOHOL.—This method, described by M. Ranvier in the *Archives de Physiologie*, February, 1875, is alleged to possess certain advantages over the one usually employed in the examination of bone, namely, of mounting dry sections in Canada balsam. By the use of the following means, the structure of the object is far more perfectly shown.

A portion of the shaft of a long bone is procured, and immediately on removal from the body is plunged into water. It is allowed to macerate in this for the space of a year; the water in the mean time being repeatedly changed. At the end of that time the bone will be found to have become as white as ivory, and quite free from any adhering tissue. The object of immediately plunging the bone in water is to prevent the infiltration of the canals and substance of the bone with fat.

When the bone is thoroughly macerated, sections of it are made with a saw. These sections are ground down on pumice-stone, and finally polished on a harder material. In order to remove the powdered fragments of bone which have been ground off, from the canals and lacunæ on the surface, it is sufficient to scrape the section with a scalpel. It is then placed in a warm solution of the aniline, and allowed to remain there for two hours, and afterwards dried on a water-bath.

The section is next rubbed on a hone, moistened with a 2 per cent. solution of common salt. It is then washed in this solution, and permanently mounted in a mixture of equal parts of the solution of salt and glycerine.

In objects prepared in the above manner three important facts, not previously noticed, may be observed.

The first is the existence of lacunæ or corpuscles, consisting of a simple slit, not much larger than a canaliculus. The fact of their being lacunæ is proved by the relation in which they stand to the canaliculi, which is precisely the same as that of other lacunæ. The name given to these fine atrophied corpuscles or lacunæ is *confluents lacunaires*. They are lacunæ either partially or completely atrophied. This observation bears out the theory of the disappearance of the lacunæ with age. But this disappearance is not due to the lacunæ being filled up with fresh bone, but rather to a process of atrophy.

The second interesting fact rendered clear by this method is, that the canaliculi which are given off from the outer sides of the external lacunæ of each Haversian system proceed for a short distance as though they were going to inosculate with a neighbouring system. They then turn on themselves, and inosculate with other canals belonging to their own system. These are called *canalicules récurrents*. From this fact we may conclude that each Haversian system forms a complete structure by itself, and represents the elementary bone.

The third fact relates to the structure which intervenes between the Haversian system. In transverse section there may be observed, in these islets of bone, certain small circles which represent the fibres of Sharpey divided transversely. These circles are only

to be seen in the intermediate structure, never in the Haversian system. This fact proves that the substance in these localities is developed from the periosteum. The relation which the corpuscles and canaliculi bear to the fibres of Sharpey may be briefly stated as follows. The corpuscles are placed in the angles formed by the intersection of these fibres. The canaliculi surround the fibres, but do not pass through them. This last fact, taken into consideration with that of the recurrent canaliculi of the Haversian system, proves that the canaliculi are spaces left in the substance of the bone at the time of its development, and not fissures made during the preparation of the section.

[The above paper is accompanied with a plate which demonstrates very fairly the facts pointed out by the author.—*Rep.*]

BENEDIKT ON THE PHYSIOLOGY AND PATHOLOGY OF THE PYRAMIDS OF THE MEDULLA OBLONGATA.—In a paper originally published in the *Wiener Medizinische Presse*, Dr. Benedikt seeks to prove that the commonly received opinions as to the functions of the pyramids are wrong. He commences by stating that the pathological teaching of the present time asserts that the pyramids are the conductors of the excito-motor impulses in a centrifugal direction, and of sensation in a centripetal direction; but that the real fact is, that they are neither motor nor sensitive in the sense intended by Bell. He proceeds to state that anatomically the pyramids may be divided into bundles of fibres, which are continuations of the lateral and posterior columns of the cord. Fifteen years' clinical experience, more particularly of the facts presented by *tabes dorsalis*, have lead him to the conclusion, contrary to that of most physiologists and pathologists, that the bundle which is the continuation of the posterior cord consists of fibres of a regulating and co-ordinating motor nerve-system, and that Bell's doctrine of their connection with the central nerve-system is in opposition to pathological truth. The physiological conclusion, also, that the external bundle of the pyramids is sensory, because of its connection with the posterior column of the cord, is wrong in principle, and involves a *petitio principii*, as it is necessary first to prove the sensory property of the posterior cord itself. Neither the external nor the internal bundle forms any direct continuation with the spinal cord.

Experimental physiology is thus, with one exception, in the dark as to the nature of the pyramids. It says that the negative results obtained by section of these parts renders their nature enigmatical. An experiment by Harless, confirmed by Cyon, is the only one that bears out the author's views. The correctness of the conclusion deduced from this is, however, disputed. Pathology, according to the author, if properly viewed, presents a more satisfactory solution of the question. Careful observation of disease has convinced him that, when these parts are affected, there is a certain innervation of the motor power, more particularly of the upper limbs, a disagreement between antagonistic groups of muscles, the result of which is an inaccuracy in obeying the ordinary motor impulses of the will. If, however, the will be more powerfully exerted, this inaccuracy is overcome.

W. KESTEVEN, JUN.

BLANCHE ON EXPERIMENTAL RESEARCHES ON PROTOXIDE OF NITROGEN.—Dr. Tony Blanche (in *Thèses de Paris*, 1874), gives as the result of his very

complete and extremely interesting experiments on the mode in which protoxide of nitrogen acts, that of all experiments made on protoxide of nitrogen one great fact results; it is that asphyxia supervenes in persons submitted to the inhalations of this gas, an asphyxia demonstrated by indisputable signs. In all the experiments reported these symptoms have been remarked, and Drs. Jolyet, Tony Blanche, Charcot, Blot, Laborde, and Dumontpallier have all testified to having seen the purplish colour of the face, the slackening of the respiration, etc., which M. Charcot characterises as an extremely serious condition, bringing to mind certain phenomena of the death-struggle. M. Magitot entirely shares the opinion expressed by MM. Charcot and Blot on the subject of the surgical employment of this gas. The number of known deaths increases daily, and in all which have been ever so little studied, the accident has been the result of asphyxia. Some necropsies have been made, and have plainly demonstrated this mechanical action. It has been alleged that the bad quality of the gas used for the experiment explains the asphyxia; but such is not the case, for M. Pictet had observed these alarming symptoms even in experiments carried on at the house of the inventor of protoxide of nitrogen. Besides, if the preparation of the gas present difficulties of the most delicate kind, which is certainly the fact, that only constitutes an additional danger in addition to those which are already sufficient to proscribe inhalations of protoxide of nitrogen. From his own personal experiences Dr. Tony Blanche comes to the conclusion that chemically pure protoxide of nitrogen cannot maintain the respiration of animals any more than that of vegetables. Combustion, in which respiration consists, is not sufficiently powerful to decompose this gas. Breathed in a pure state by animals, the protoxide of nitrogen is then an asphyxiating gas, which brings on death by producing all the usual signs of asphyxia by strangulation or by the respiration of inert gases (hydrogen and nitrogen). If protoxide of nitrogen inhaled in a pure state produces anæsthesia, it is by acting as an asphyxiant in consequence of the want of oxygen in the blood. Insensibility only shows itself when there are only two and three per cent. of oxygen in the arterial blood; the blood is then very black. Animals, on the contrary, can live if they breathe artificial atmospheres of protoxide of nitrogen and oxygen, in the proportions of the aerial gases; protoxide of nitrogen replacing the nitrogen without showing disturbances of sensibility. Protoxide of nitrogen appears, however, to leave an action not clearly defined on the brain, somewhat analogous to that determined by the diminution of oxygen, and not bringing on loss of consciousness. He is also of opinion that protoxide of nitrogen, being an irrepressible gas of which the preparation offers certain difficulties, and which only produces anæsthesia as a consequence of the asphyxia it produces, and its use having caused death in several instances, its employment ought to be, if not completely abolished, at least greatly restricted, in medical practice.

JAFFE AND DONCHIN ON THE PHYSIOLOGICAL EFFECTS OF SALTS OF DINITROBENZOLE.—At a meeting of the Königsberg (Prussian) Verein für Wissenschaftliche Heilkunde, on February 23, 1874 [see report in the *Berliner Klinische Wochenschrift*, for January 11, 1875], Herr Jaffe communicated the results of some experiments made by him in conjunc-

tion with a student named Donchin, on the physiological effects of salts of dinitrobenzole ($C_6H_4(NO_2)_2$). The test employed was a modification of a very sensitive one for carbolic acid lately proposed by Jacquemin; and they had demonstrated that after the ingestion of dinitrobenzole, whether by mouth, or subcutaneously, even in very small doses, carbolic acid can always be obtained from the blood and urine. It is not quite clear that it exists as such in these fluids, as it may possibly be formed during distillation out of undecomposed dinitrobenzole. These experimenters also noticed in rabbits thus poisoned that the muscular tissue of the heart retained its irritability many hours after death, just as Cunze has shown to occur in poisoning by arsenious and arsenic acids. Only the auricles, particularly the right, continued their spontaneous movements as long as nine or ten hours after death. These phenomena were only observed in cases where the animals died soon after taking the poison, from asphyxia. In protracted cases the heart became gradually paralysed, and after death was found immediately both motionless and devoid of irritability. If Cunze's explanation be adopted, that these phenomena are to be attributed to the power of preventing fermentation and putrefaction possessed by arsenical acids, the same phenomena in dinitrobenzole poisoning should probably be attributed to carbolic acid. As a matter of fact, it was so in poisoning by pure carbolic acid, and the contractions of the right auricle continued more than ten hours after death. All antiseptic and antizymotic substances apparently act in the same manner; and Herr Jaffe had proved this most remarkably in the case of strychnine.

W. BATHURST WOODMAN, M.D.

ORD ON THE NATURAL HISTORY OF THE URATES.—Dr. Ord (Transactions of the Royal Microscopical Society, in the *Monthly Microscopical Journal*, March, 1875) has studied experimentally the forms assumed by urate of soda and urate of ammonia, when deposited from water alone or in the presence of other substances, as gelatin, albumen, chloride of sodium, or other salts and acids. The general result is, that two forms at least must be added to the three already known, viz., crystalline, spherical, and amorphous. The five forms thus recognised may be arranged in the following order, according to their several degrees of departure from what the author calls 'the colloidal or quasi-living state' to the 'crystalline or not-living state': 1. Gelatinous colloid; 2. Molecular urate; 3. Spherules of the first kind, soft, and tending after a time to crystallise; 4. Needles; 5. Spheroids of second kind, composed, as the author believes, of matter originally crystalline, but subdued by the colloid medium to a colloid form. The spherules (3) are large and soft, and break up after a time into needles; they are formed under two conditions, either in acid urates, or the combinations of hot saturated solutions of urates with chlorides or phosphates of alkalis. The spheroids of the second kind (5) are dense and compact; they are formed by acid urate in gelatin.

J. F. PAYNE, M.B.

THE annual dinner of the Chairman and Committee of Management of King's College Hospital will take place on Wednesday the 14th inst. His Royal Highness the Duke of Cambridge, President of the Institution, will take the chair. The dinner will be served at the college at a quarter to seven o'clock.

MEDICINE.

MANN ON NASAL CATARRH.—Dr. Edward C. Mann has contributed a valuable paper on the pathology and treatment of nasal catarrh to the October number of the *New York Medical Journal*. Commencing with an excellent account of the normal anatomy of the Schneiderian mucous membrane, he proceeds to describe the changes it undergoes in acute and chronic catarrhal inflammation.

‘At the outset of an attack of acute nasal catarrh, the capillary vessels of the nasal mucous membrane are distended with blood, the tissues are infiltrated, and from the mucous membrane, swollen by congestion and œdema, is discharged a thin, colourless saline secretion. After the primary swelling and congestion have subsided, this secretion becomes thickened from the addition of young cells. If the disease run into the chronic form, we shall find the nasal mucous membrane considerably thickened, especially the mucous membrane covering the turbinated bones. The swellings of the nasal mucous membrane do not have their seat in the mucosa, but are œdematous infiltrations of the submucous connective tissue. The swelling is dependent upon the amount of hyperæmia, so far as depends upon the increase of volume of the vessels, and upon a more abundant saturation of the mucous membrane with serum. After this condition, which characterises acute catarrh, the mucous membrane may return completely to its normal condition, but it is liable, upon any slight irritation, to again take on catarrhal inflammation; and such relapses are much more difficult to treat than was the primary disease. Each relapse increases the proliferation of cells in the submucous connective tissue. The epithelium and mucous glands gradually enlarge, and the mucous membrane passes into an hypertrophied condition.

‘In chronic nasal catarrh we find, in many instances, catarrhal ulcers, superficial as a rule, but which in scrofulous and cachectic patients may penetrate more deeply, destroying the perichondrium and periosteum, and giving rise to caries and necrosis of the cartilages and bones of the nose. In these cases, the secretion from the nasal passages is extremely offensive, requiring the use of deodorising solutions of chloride of lime, or permanganate of potassa, which may be used with the posterior nasal syringe or nasal douche.’

In some cases the mucous membrane is relaxed, in others it assumes the condition of ‘mucoid polypous outgrowths.’

The symptoms of acute and chronic nasal catarrh are next given, but, as these are well known, we need not dwell upon them. Dr. Mann says, ‘By means of rhinoscopic examination we are enabled, much more accurately than formerly, to determine the seat and progress of nasal catarrh, and to make local application to the mucous membrane covering the turbinated bones and septum, which are the parts especially liable to take on ulceration; and it is here also that we find the greatest thickening and hypertrophy of the mucous membrane, resulting sometimes in the production of mucoid polypi. These polypi owe their production to a circumscribed hypertrophy of the mucous membrane, which is especially concentrated upon the glands. The principal mass of the tumour is formed by hypertrophic

glands, and is attached to the mucous membrane by a more or less distinct pedicle.’

The most important part of the paper is, however, that devoted to treatment. This should be partly constitutional and partly local. Iron, quinine, and cod-liver oil, combined with iodine in scrofulous cases, are the remedies suggested for improving the general health.

Before resorting to the application of local remedies, Dr. Mann recommends the nasal cavities to be thoroughly cleansed, anteriorly and posteriorly, with Thudicum’s nasal douche, or the posterior nasal syringe, and a warm saline solution, containing sixty grains of common salt to the pint of water. A solution of nitrate of silver in glycerine (gr. sixty to one oz.) should next be applied thoroughly to the entire surface of the nasal cavity, to diminish the congestion and thickening of the mucous membrane. This application is recommended to be followed by the propulsion of the vapour of iodine into the nasal cavities anteriorly, by means of an instrument which is made of ‘hard India-rubber, having a cavity filled with sponge which is medicated with the tincture of iodine. Upon one end of this hard rubber apparatus is attached a nasal tube fitting into the nostril, while to the other extremity is attached a soft rubber bulb with a flexible tube. By compressing the bulb, atmospheric air, or steam if desired, is forced through the hard rubber apparatus containing the sponge saturated with iodine, and diffuses the vapour of iodine throughout the entire extent of the nasal cavities, exerting a powerful alterative and curative effect upon the mucous membrane.’

The application may be continued for a quarter of an hour at a time, and repeated every other day.

Besides the above, Dr. Mann prescribes a snuff, composed of equal parts of finely pulverised camphor and powdered white sugar, to be used *ad libitum*, and he says ‘patients are unanimous in their expression of relief subsequent to its use.’ The other local measures recommended are injections (ʒij to water ʒij), and sprays of sulphate of zinc and copper.

When there is ulceration of the mucous membrane and caries of the bones of the nose, a solution of iodine and iodide of potassium in glycerine (℞ iodinii gr. ij, potassii iodidi gr. xij, glycerini ʒij.) applied over the affected parts, is of great service. Polypous outgrowths should be removed by twisting them off by forceps, or encircling them with a wire snare and then cutting them off by drawing the loop tight, after which the remaining portion may be cauterised with nitrate of silver.

Dr. Mann next cites three very interesting cases of chronic nasal catarrh cured by the measures he recommends, and concludes his paper by the following results of his experience. ‘If cases can be seen at the outset, or before thickening of the mucous membrane has taken place, they can be easily cured, while cases of long standing invariably require protracted treatment for the accomplishment of a thorough cure.’

[Physicians, who have had obstinate cases of œzœna under their care, gladly welcome any suggestions which are likely to relieve their patients of this most cruel malady. The reporter has recently had under his care two obstinate cases of this disease, and can fully bear out Dr. Mann’s recommendations as to the importance of constitutional treatment. The only local applications which have been of service, after thoroughly cleansing the nasal cavities, have been solution of permanganate of potash and

citrine ointment diluted with olive-oil. The mercurial and other snuffs recommended by Trousseau were useless. In one of the reporter's cases, the fetor was much increased at each catamenial period.—*Rep.* J. B. BRADBURY, M.D., Cambridge.

GUEDES ON A CASE OF FLOATING KIDNEY.—At a meeting of the Lisbon Medical Society, on February 13 (*Correio Medico de Lisboa*, February 22), Senhor Ramiro Guedes related a case of floating kidney. It occurred in an unmarried lady, aged forty, a schoolmistress. She first came under notice in May, 1874, and stated that, a little more than a month previously, she observed one morning an abnormal prominence in the left side of the abdomen, and at the same time began to feel severe pain in the lumbar region. She had been nursing her mother, who was suffering (it was said) from uterine cancer, and was a very heavy woman; and she attributed the symptoms of which she complained to the exertion used in raising her mother and changing her position in bed.

About a fortnight before Dr. Guedes saw her, the patient's abdomen became considerably enlarged and tympanic; she had constipation, fever, and severe pain in the abdomen, and the tumour became indistinct. After the use of a laxative and fomentations to the abdomen the symptoms subsided, and the tumour could be again felt. On examination, Dr. Guedes ascertained the tumour to be a floating kidney, on the left side. He advised the patient to apply a bandage round the abdomen, to apply a liniment of oil of hyoscyamus and chloroform to relieve the tenderness, and, as she was much debilitated, to take pills containing three-fourths of a grain each of sulphate of quinine and lactate of iron, and a grain and a half of extract of gentian.

The case was also examined, at the invitation of Dr. Guedes, by Dr. Flores; who considered that, in addition to its displacement, the kidney was affected with cancer. He based this opinion on the colour of the patient's skin, which was indicative of cancerous cachexia, and on the circumstance that (as was reported) her mother had died of cancer of the uterus. Dr. Guedes, however, in the absence of any further indications of renal cancer, held to his belief that the case was simply one of floating kidney.

The patient passed from under the observation of Dr. Guedes; but he learned that she died sometime afterwards, having suffered from lancinating pains in the abdomen, diarrhoea, and hæmorrhage—symptoms, he believed, of peritonitis produced by the irritant action of the displaced kidney, which acted as a foreign body in the peritoneum.

A. HENRY, M.D.

SPECK ON DEATH FROM A RATHER HIGH TEMPERATURE.—C. Speck publishes a case, in Eulenberg's *Vierteljahrsschrift für gerichtliche Medizin und öffentl. Sanitätswesen*, vol. xxi., quoted in *Centralblatt für die Medicinischen Wissenschaften*, Feb. 27, 1875, of death which he attributes to a high temperature. A girl aged seventeen, who had suffered for eight years from contractions of all her joints, was enveloped, as a remedial measure, in the skin of a sheep just killed, then surrounded with fresh-baked hot bread, and a covering thrown over all. She complained after an hour of feeling uncomfortable, and of pain, then sank into sleep, then had difficulty of breathing, and perspired a great deal; lastly, became pale, and died about three

hours from the beginning of the 'cure.' The most marked feature of the necropsy was advanced decomposition, although the surroundings were not favourable to this. The finest vessels in the pia mater were injected, whilst the larger were almost empty of blood, but contained air [*sic*]. The heart and large vessels were almost bloodless; the pericardium contained frothy fluid. The walls of the heart were pulpy, and studded with punctiform ecchymoses. The medico-legal report was to the effect that, in the absence of any other cause of death, the advanced decomposition pointed to decomposition of the blood, and that death was probably due to the so-called 'cure.' Reference was made to the investigations of Bernard and Ackermann, showing the injurious effects of temperatures equalling or exceeding the normal temperature of the body. Speck satisfied himself that bread exposed to the air in a room at the temperature of 16° or 17° (60° to 62° Fahr.) had, after two hours, a temperature of 45° (113° Fahr.) in the interior. [The reporter thinks it far more reasonable to attribute this death to the carbonic acid, etc., given off from the bread, especially as he knows of a somewhat similar case, which occurred in the country some years ago, when death, with all the signs of suffocation, followed from a similar procedure advised by a quack. It is also well known that accidents of this kind used to occur to journeymen-bakers some years ago. The empty condition of the heart and great vessels was, no doubt, due partly to the youth of the victim and partly to decomposition.—*Rep.*]

W. BATHURST WOODMAN, M.D.

RECENT PAPERS.

- The Indications for the Treatment of Cerebral Rheumatism by Cold Baths. By M. Dujardin-Beaumetz. (*L'Union Médicale*, March 28.)
 On Scrofulous Pyelitis. By Dr. J. J. Charles. (*British Medical Journal*, March 20, 1875.)
 On Shock. By Dr. Herman Fischer. (*St. Louis Medical Journal*, February, 1875.)
 A Case of Worms in the Urinary Bladder. By Dr. Melvin Rhorer. (*American Practitioner*.)
 Contribution to the Study of Normal Thermoscopic Curve of Typhoid Fever. By Dr. Louis Guillaume. (*Revue Médicale de l'Est*, March 15, 1875.)
 Two Cases of Cirrhosis of the Liver in Children. By Dr. Cazalis. (*Progrès Médical*, March 20, 1875.)
 Esophageal Carcinoma and Aneurism of the Arch of the Aorta giving rise to Symptoms of Laryngeal Phthisis; Death. By M. Chandelux. (*Lyon Médical*, March 21, 1875.)

DISEASES OF CHILDREN.

HEINZEL ON OPHTHALMOSCOPIC EXAMINATION IN CEREBRAL DISEASE IN CHILDREN.—In the *Jahrbuch für Kinderheilkunde*, Dr. L. Heinzel contributes a series of observations on the diagnostic value of ophthalmoscopic examination in cases of intracranial disease in children. His conclusions are based upon a tabulated series of sixty-three cases; and though he confesses that he is unable to bring forward any general principle of positive value, yet he believes that they furnish negative evidence of some importance.

In forty-seven of the sixty-three cases of intracranial disease, a morbid condition of the fundus oculi was ascertained by the ophthalmoscope; in sixteen cases there was no optic disease. Of the forty-seven, eighteen were cases of neuro-retinitis;

thirteen of neuro-retinitis and papillary engorgement; four of congestion of the optic nerve; four of optic neuritis and papillary engorgement; two of atrophy of the optic nerve (consecutive); and six of atrophy of the optic nerve (genuine).

In thirty-one cases of tubercular meningitis of the base, it was observed that neuro-retinitis occurred in fifteen, neuro-retinitis with papillary engorgement in five, congestion of the optic nerve in four, commencing atrophy in two, genuine atrophy in one, and the condition was normal in four.

In ten cases of acute tuberculosis, where other organs were affected with tubercle, neuro-retinitis occurred in three, optic neuritis with papillary engorgement in one, atrophy of the optic nerve in three, and normal condition in three.

In fourteen cases of tumours of the brain, neuro-retinitis occurred in five, neuro-retinitis and subsequent atrophy in two, genuine atrophy in four, and normal condition in three.

In two cases of oedema of the brain the optic nerves were congested. The condition of the ophthalmic nerve was normal in two cases of oedema of the meninges, with chronic hydrocephalus; in one of oedema of the meninges and phthisis pulmonalis; in one of hyperæmia of the meninges; in one of sclerosis cerebri; in one of cerebro-spinal meningitis, and in one of hydro-rhachis.

STEFFEN ON STRIPED PNEUMONIA.—In the *Fahrbuch für Kinderheilkunde und Physikal Erziehung*, February, Dr. Steffen describes, under the term 'striped pneumonia,' a pathological condition characterised by inflamed condensation of the lung-tissue in the form of stripes. These extend from the spine towards the costal angles, and may traverse only one lobe, or may take such a course as to affect more than one. The various ages at which this form of inflammation occurs are exhibited in a tabulated statement, and allow the conclusion that it is most frequent between the fourth and twelfth month, and diminishes progressively up to the ninth year. These conclusions are founded upon an analysis of ninety-seven cases, of which fifty-four were boys and forty-three girls. It was met with most frequently on both sides of the chest, though, like other forms of pneumonia, it may be more marked on one side than on the other. It is not associated with pleurisy, and thus differs from acute pneumonia in adults. Pathologically, the disease consists of infiltration of lung-tissue with blood, at the same time that there is desquamation of the pulmonary epithelium. It occurs with emphysema and passive congestion, though the affected portions of the lung may be distinguished clearly by their colour from those in the latter condition. Among other complications, peribronchitis, pneumonia, and oedema occur very frequently. Constitutional predisposition and malnutrition are the most common causes which tend to this form of pulmonary disease.

LARYNGEAL GROWTHS IN CHILDREN.—In the *Fahrbuch für Kinderheilkunde* (February), Dr. Klemm makes some general remarks on laryngoscopy, and relates two cases of growths in the larynx in young children.

The first (girl, aged six) terminated fatally after tracheotomy. The right true vocal cord was entirely converted into an irregular papilliform excrescence, the left almost entirely, the masses being separated to some extent from one another. Their microscopical

character was not determined. The disease was acute; fourteen weeks having elapsed between the first symptoms of laryngeal disturbance and the time of the operation.

In the second case (girl, aged two and a half) the disease, without known cause, had continued since the age of three months, and gave rise to no severe symptoms. A small red polypus, of the size of a pea, was observed near the posterior angle between the cords. No treatment was adopted.

ROBERT J. LEE, M.D.

SURGERY.

FALK AND VON LANGENBECK ON SHOCK.—Dr. Falk, at a recent meeting of the Berlin Medical Society, reported in the *Berliner Klinische Wochenschrift*, no. 8, 1875, referred to cases of wounds of the abdomen causing speedy death. In these cases all the phenomena were presented of the condition described by John Hunter and English surgeons particularly as shock. In death from shock, there is no palpable lesion to account for the fatal result; and no direct injury of any central organ can be demonstrated. The blood supplying the ganglionic apparatus of the heart and brain is not impaired in quality. Collapse and death occur quite independently of organic injury of any abdominal viscus. Dr. Falk, recognising failure of the heart's action as the most prominent symptom of shock, holds that much light may be thrown on this subject by consideration of some recent physiological experiments. In Goltz's well known experiment, the so-called *Klopfversuch*, a blow on the abdomen of a frog, will cause a sudden arrest of the cardiac movements in consequence of reflex irritation of the inhibitory fibres of the vagus. In a more recent experiment made by Fischer, it was found that frequently repeated blows on the abdomen of an animal will also impair the cardiac movements; and, at the same time, produce an arrest of the circulation in the abdominal viscera, in consequence of which less material is supplied for keeping up the contractility of the heart, which organ exhausts itself in frequent fruitless contractions. Similar processes occurring in the human body after injury to the abdomen might serve, according to Dr. Falk, to account for fatal shock; but he holds that they never constitute the sole cause, but are always associated with loss of blood or a morbid condition, either inherited or acquired, of the heart and large vessels. Dr. Falk believes that cases of fatal shock during the performance of a severe operation have occurred less frequently since the introduction of anæsthesia, and he alludes to the fact that Goltz's experiment fails when performed on a frog deeply under the influence of chloroform. It has been pointed out, however, by physiologists at Vienna, that irritation of the nasal terminations of the trigeminus by the inhalation of chloroform may cause arrest of the heart's action and of respiration.

In the course of some remarks on Dr. Falk's paper, Herr von Langenbeck stated that he had long excluded the term shock from his surgical nomenclature, because it represented to him no clear idea, and had been applied to many very different conditions. In recent times, the term had been used to account for death occurring during operations, when the fatal result could not be otherwise accounted for

than by hæmorrhage, and, in cases of operation on the jaws and mouth, by suffocation. Shock could not rightly be regarded as a cause of death after resection of the hip. According to the reports of Otis, the deaths from supposed shock occur after primary resection performed immediately, or in the first twenty-four hours after severe injury. Death seldom, if ever, occurs from shock in the intermediary or infiltration period. In instances of this kind, according to the views of Von Langenbeck, death is due, not to shock, but to loss of blood. Von Langenbeck stated that he had never known death to occur in cases of wound of the abdomen, until after such an interval as would permit the development of peritonitis.

WEIGAND ON GANGRENE OF THE PENIS AND SCROTUM.—Dr. Weigand, of Colmar, reports in the *Berliner Klinische Wochenschrift*, no. 10, 1875, two cases of gangrene of the male genitals. In the first case, extensive gangrene of the penis and scrotum, with much constitutional disturbance, occurred three days after the commencement of a paraphimosis in a soldier, whose prepuce had previously been in a normal condition and could be readily drawn back over the glans penis. The treatment consisted in the administration of quinine and wine, and in the application to the gangrenous parts of charcoal. After exposure of both testicles, and destruction of a greater part of the skin of the penis, healthy granulation was established, and the patient made a good recovery. In the second case, the integument of the left side of the scrotum became gangrenous, after the application of a compressing bandage for the treatment of gonorrhœal epididymitis. In this case, although there was much destruction of soft parts, the general health remained good, and the temperature was not elevated. In this, as in the preceding case, the seat of the disease was freely dusted with charcoal. These two cases are supposed by Dr. Weigand to present several points of interest. In the first place, they occurred at the same time, and this coincidence suggested the idea of contagion, which, however, was soon rejected by Dr. Weigand, on recognising the facts that the local symptoms were quite different from those of hospital gangrene, and that in the same ward with these two patients were several others suffering from open buboes and recent chancrous ulcers, who remained unaffected. In the first patient, the prepuce had previously been in a normal condition, as there had not been a congenital phimosis; here, therefore, we have an exception to a rule laid down by Bardeleben and other surgeons, that paraphimosis occurs only in those subjects who have drawn from over the glans penis an abnormally long prepuce, with a contracted orifice. Dr. Weigand has observed several exceptions of this kind, and states that in these cases the paraphimosis is due to inflammatory swelling of the mucous membrane about the corona glandis, excited by soft chancres, balanitis, or increased glandular secretion; the extension of this swelling to the prepuce rendering it difficult or impossible for the patient to cover the glans again. In Dr. Weigand's case, the paraphimosis was reduced without difficulty and with but little force; but still gangrene resulted, probably because the compression of the integument and its vessels had been kept up too long, and probably because also the constricting ring had not been sufficiently relaxed. Dr. Weigand now lays it down as a rule always to incise this ring in cases where

paraphimosis is not very recent. In the second case, the gangrene of the scrotum is attributed to compression of the anterior scrotal artery of the affected side by the compressing bandage used for the treatment of swelled testicle. One cannot, Dr. Weigand holds, account in any other way for the fact that only the compressed portion of the scrotal integument became gangrenous. In conclusion, Dr. Weigand recommends strongly the old and, as he thinks, obsolete practice of applying powdered charcoal to ill-smelling gangrenous surfaces.

W. JOHNSON SMITH.

VOLKMANN ON ANTISEPTIC OSTEOTOMY.—Mr. Lister publishes, in the *Edinburgh Medical Journal* for March, a communication from Professor Volkmann, of Halle, in which he relates with great satisfaction the very favourable results which he has obtained from the antiseptic treatment of wounds. He describes his hospital as being old, with bad sanitary arrangements, and always overcrowded, yet since the introduction of Mr. Lister's method two years ago sixty major amputations have been performed without one case of pyæmia; thirty-one compound fractures, many of them very bad cases, have been admitted during the same time and have all been successfully treated; among these were two cases of compound comminuted fracture of the patella, both of whom recovered with movable joints. As a consequence of this success, Dr. Volkmann has been able to advise with more confidence the performance of operations of expediency, 'the justification of which,' he says, 'undoubtedly depends entirely on the possibility of guaranteeing a successful termination.' For instance, during last year he performed osteotomy thirteen times for the relief of faulty ankylosis of the hip and knee joints, and in every case the operation was perfectly successful. In none of them did the least redness or swelling of the soft parts occur, and only in three cases was there the smallest attempt at suppuration. In most instances he simply cuts through the femur or tibia, or both, with a chisel, but if the amount of flexion be extreme, a wedge-shaped piece of bone must be removed. He points out that in many cases, of stiff knee more especially, simple extension of the limb is either impossible, owing to former bony ankylosis, or is inexpedient owing to deformity of the condyles of the femur or to subluxation of the head of the tibia; in these latter cases forcible extension is very apt to leave a weak useless limb, and a recurrence of the contraction often happens. Most of the patients thus operated on by osteotomy would therefore only a few years ago have been subjected to amputation below the knee; this simple operation now restores to them a sound and useful limb, and they are able to walk well, at all events with the aid of a thick-soled boot.

J. W. LANGMORE, M.D.

RECENT PAPERS.

- On Recent Improvements in the Details of Antiseptic Surgery. By Joseph Lister, F.R.S. (*The Lancet*, March 13 *et seq.*)
- On a New Apparatus for the Treatment of Compound Fracture and other Important Lesions of the Lower Limbs. By Dr. Scheuer. (*Journal de Médecine de l'Ouest*, September, 1874.)
- An Endeavour to Classify the Diseases of the Larynx and Pharynx. By Dr. Isambert. (*Annales de l'Oreille et du Larynx*, March 1, 1875.)
- On Amygdalotomy. By Dr. Saint-Germain. (*Annales de l'Oreille et du Larynx*, March 1, 1875.)

- On Laryngopathies during the First Phases of Syphilis. By Drs. Krishaber and Mauriac. (*Annales de l'Oreille et du Larynx*, March 1, 1875.)
- A Contribution to the History of Transfusion of Blood. By Dr. A. Paci. (*Lo Sperimentale*, March, 1875.)
- On the most favourable Time for the Application of Immovable Apparatus in the Treatment of Fracture. By Dr. A. Ceccherelli. (*Lo Sperimentale*, March, 1875.)
- A Case of Staphylography on account of Destruction of a Part of the Soft Palate by Scrofulous Ulceration. (*Lo Sperimentale*, March, 1875.)
- A Successful Case of Resection of the Hip-Joint. By Dr. P. Guterbock. (*Berliner Klinische Wochenschrift*, March 29.)

OBSTETRICS AND GYNÆCOLOGY.

KEITH ON SUPPURATING OVARIAN CYSTS.—Dr. Thomas Keith (*Edinburgh Medical Journal*, Feb., 1875) gives the following cases, as proving that ovariectomy should be the rule in cases of acute suppuration in ovarian cysts, or when typhoid symptoms come on after tapping. He briefly sketches a case which was under his care ten years ago, the patient arriving exhausted with a long journey, with vomiting, diarrhoea, oedematous limbs, albuminous urine, and profuse foetid discharge from an opening near the umbilicus. In those days, ovariectomy was not thought of in such a case, but the miserable lingering death made a strong impression upon Dr. Keith.

Soon afterwards, in 1864, another case came with a very large tumour, the patient suffering much from jolting in a coach. She was tapped, but without relief. Abdominal distension and typhoid symptoms came on; and fearing a repetition of the slow death he had seen, he performed an operation during the semi-delirium of septic fever. The peritoneum was almost black, the intestines highly inflamed, the base of the cyst sloughing and gangrenous. After an operation lasting two hours, the patient was placed in bed, cold, vomiting, and nearly pulseless; but the delirium passed off, perspiration came on, and she recovered without a drawback.

This case acted as a landmark; and in twelve cases which Dr. Keith has since had (ten of acute suppuration and two of chronic) ovariectomy has been tried in all but one, and was only put off in this case on account of the wretched home and surroundings of the patient, who was seen for the first time three days after her fourth confinement. Immediate tapping was necessary to relieve urgent dyspnoea, and six gallons of fluid were removed. It was found impossible to move her into better quarters for operation; and in three weeks she was again tapped, and the cyst-contents were intensely putrid; the cannula became choked, and a larger opening was made, and the cyst cleared out with the fingers. The cyst was fortunately single; and, after long and exhausting suppuration, during which she was solely supported by milk and butter-milk without stimulants, she recovered, and has since borne two children.

Of ten more or less acute cases operated on, eight recovered, and the two chronic cases got well easily.

Dr. Keith gives details of seven cases occurring in the course of his second hundred ovariectomies, and not before published.

[The following are brief abstracts of these remarkable results, which we should advise all to read for themselves in the original paper.—*Rep.*]

Case 1.—*Recovery.* Mrs. M., aged thirty-five. The tumour was detected in 1869; Dr. Keith saw

her in 1871. During the previous eighteen months the tumour had increased rapidly and she had suffered intensely, being almost entirely confined to bed. Dr. Keith, after letting her rest two days after her journey, found her with a pulse of 156, and temp. 103°, extremely emaciated and blanched. The tumour was above the umbilicus, and fluctuated; below it felt solid, and the abdominal wall was thick, hard, and oedematous, and in places even the skin seemed adherent. Three days later, three gallons of thick pus were removed by tapping above the umbilicus, with much relief, but a large firm tumour remained below. In three weeks the cyst had refilled, the pulse was rapid and feeble, temp. 103° to 104°; the skin was dry and shrivelled. Ovariectomy was performed. The adhesions were very extensive, thick, and vascular. The lower semi-solid part was firmly adherent in the pelvis, and posteriorly there were extensive intestinal adhesions. After the removal of the tumour, large flakes of old lymph like cartilage were peeled off. All bleeding points were secured with Lister's catgut; the pedicle was secured by clamp, and the wound closed with silk sutures. The operation lasted upwards of an hour, and much blood was lost. For many days she was in an extremely weak and critical condition; and in the third week a collection of serous fluid formed in the right iliac fossa, and was punctured. We have not space for the interesting details of the case; but in five weeks she returned home, and is now a strong healthy woman.

Case 2. *Recovery.* The patient was aged forty, and had been tapped by Dr. Keith two months before. Shivering, pain, and tenderness, with a pulse of 120, the temperature 102°, and dry red tongue, announced suppuration, and caused him to advocate immediate ovariectomy. Extensive and firm parietal, omental, mesenteric, and intestinal adhesions were separated, as well as adhesions to the rectum, and the bottom of Douglas's space. The cautery was used for dividing the pedicle. For forty-eight hours fever ran high, and the case seemed doubtful; then flatus passed freely, and she slept. Recovery was rapid, and she is now quite healthy.

Case 3. *Recovery.* This case is remarkable for the very low temperature, which, together with the general symptoms, led to suspicion of malignancy. The temperature was always below the normal, lower in the mouth than in the axilla. A second tapping gave two gallons of fetid pus, and revealed to Dr. Keith the true nature of the case. The tapping gave little relief, and the patient was, to all appearance, dying. On the morning of the operation the pulse could hardly be counted at 130; the temperature in the mouth was 95°. After clearing the cyst, the opening was closed by means of forceps and the whole held well forward; the operator's hands being well washed before proceeding to separate the adhesions, which were extensive. The cautery was used for dividing the pedicle. There was much oozing, and the wound was not closed for an hour and a half, when the sponges came out dry. She seemed almost dead when placed in bed; yet next morning the look of suffering was gone. In twenty-two hours flatus passed freely, and in four weeks she went home, and has enjoyed excellent health since.

Case 4. *Recovery.* This case, one of a young Canadian lady, aged twenty, is similar, both as to severity and difficulty of operation and result. The cautery was again used. Recovery was slower; and

there was free purulent discharge from a drainage-tube passing to a depth of six inches, beginning about the ninth day, and lasting for a fortnight. Her health has been excellent since her return to Canada.

Case 5. *Pyæmic fever; death from septicæmia three days after operation.* The patient was a large, fat, flabby, unhealthy woman aged fifty-three. She was tapped three times, and a fourth when suppuration had occurred. After a sixth tapping, the last chance was given her, though Dr. Keith thought unfavourably of her. The adhesions, as in the other cases, were very extensive, including the whole under surface of the liver and the gall-bladder. The cautery was used. Pressure by sponges to check oozing from hepatic adhesions caused much exposure of the abdominal cavity. For the first few hours her condition was very satisfactory, but at 5 A.M. next morning a change for the worse set in, with severe catching pain over the liver; and though there was some slight improvement on the second night, she gradually sank and died at the end of the third day.

Case 6. — *Recovery.* This is a remarkable case, in which a suppurating cyst burst into the peritoneal cavity, bringing the patient to the very verge of death. Dr. Keith tapped, and squeezed out two basinfuls of pus, etc.; and she so far rallied, that he thought it right in a fortnight to give her the chance of operation. The operation was like the others prolonged (two-and-a-half hours) from extensive adhesions, etc. A glass drainage-tube was left in, passing to the bottom of the pelvis behind the uterus; a sponge was placed over this, and it was cleared at intervals by suction, the fluid coming away being gradually freer from blood. On the third day it was removed, but was reintroduced on the fifth, and an ounce and a half of putrid red serum removed. On the twenty-sixth day the wound was cicatrised, and the patient well, having lost all traces of chorea, from which she had suffered before the operation.

Case 7.—*Recovery.* This is a similar case to the others. The cautery was again used, and the wound kept open till all oozing had ceased. She was well in six weeks, recovery having been retarded by sitting at an open window and catching a severe pleurisy.

The two chronic cases are not given in detail. In both the pedicle was treated by the clamp; in one there were adhesions, in the other, none; both recovered well. Dr. Keith, in conclusion, points out how high the temperature was in the acute cases, and how it fell several degrees directly after operation. In two of the cases the temperature was, on the contrary, extremely low before the operation, and rose after it.

In one chronic and one acute case, there were no adhesions; in the others, they were of the gravest nature. In five of the cases the clamp was used, and in five the cautery. One died in each class. He does not think tapping is generally a cause of this acute suppuration in cysts, and points out that pain or tenderness must be generally regarded as an indication of mischief going on in the cyst. Inflammation and adhesions between the peritoneal surfaces generally occur with but little history of pain, and that of a transitory character.

The extreme feebleness of pulse and depression of vital powers which these cases present must not deter from operation; they are not so unfavourable as they seem. J. KNOWSLEY THORNTON.

REVIEW.

Clinique Médicale. Par le Dr. NÖEL GUENEAU DE MUSSY, Médecin de l'Hôtel-Dieu, Membre de l'Académie de Médecine, etc. Tome I. Paris: Adrien Delahaye. 1874, pp. 675.

[*Clinical Lectures.* By Dr. NÖEL GUENEAU DE MUSSY, Physician to the Hôtel-Dieu, Paris, Member of the Academy of Medicine, etc. Vol. I.]

We had the pleasure of listening to some of these clinical lectures whilst on a brief visit to the hospitals of Paris in 1866, and many of them have from time to time been published in French medical journals. We are, therefore, glad to see them collected in this handsome octavo volume, and trust this first instalment will be speedily followed by other volumes. This is not a mere reprint. Each lecture has undergone a careful revision, and the author has been ably assisted in his task by Drs. Fernie and Labadie-Lagrave. He dedicates it to the memory of his ancestors, A. C. Lorry* and J. N. Hallé. It would be neither just nor decorous to make any comparison between these clinical lectures and those of either Graves or Trousseau. They have a character of their own, and, if less brilliant than those, are not deficient in either interest or eloquence. There is a closeness of thought and solidity about them which is almost English, whilst their clear, intelligible language and orderly arrangement are eminently French. M. Gueneau de Mussy is a scholar, well versed in the history of medicine, and has largely availed himself of the labours of continental, British, and American authors. He is magnanimous enough to give honour, when due, even to Germans, and the names of Skoda, Virchow, Wunderlich, Buhl, and Niemeyer, with others long familiar, are often met with in these pages: but his own observations prove that he is an excellent observer, a good clinical teacher, and a practical physician. As a specimen of his style, and of his acuteness as a clinical observer, our space only allows us to give the following example.

‘En 1849, j’ai indiqué un signe dont j’ai plus de quarante fois depuis vérifié l’exactitude, et qui peut faire reconnaître l’apoplexie pulmonaire, alors même qu’elle forme un noyau très-circonscrit, ou que, localisée dans le centre du poulmon, elle échappe à l’auscultation. Si, plus superficiel, le foyer hémorrhagique amène quelques modifications du bruit respiratoire, telles que la faiblesse de l’expansion, l’expiration prolongée, le souffle, le râle sous-crépitant, en l’absence de crachats hémoptoïques, ce signe peut déterminer la signification de ces phénomènes et fixer le diagnostic.

‘C’est une odeur toute spéciale de l’haleine, aigre et alliée à la fois, qui rappelle la teinte de raifort et qui est celle que l’on retrouve après la mort quand on flaire un de ces foyers apoplectiques. Elle est due à l’altération que le sang infiltré dans le poulmon

* Dr. Anne-Charles Lorry was born near Paris in 1725; gained his diploma of M.D. at the age of twenty-three; and died in 1783. He published a treatise on skin-diseases, remarkable for its learning, accurate observations, methodical arrangement, and clearness of diction: also an edition of the aphorisms of Hippocrates, with notes, etc. [Paris: P. G. Cavellier, 1759] and other works; and had sketched the idea of a book to be called ‘De mutationibus et conversionibus morborum’—which Gueneau de Mussy justly calls ‘a magnificent title.’ Lorry’s death prevented its completion.

subit au contact de l'air, et suivant l'étendue du foyer, cette odeur pourra être perçue à une grande distance, ou il faudra approcher le nez du malade pour la sentir; dans certains cas même, elle serait intermittente. On conçoit que des infiltrations sanguines des gencives pourraient donner naissance à une odeur semblable. Mais, dans ce cas, l'erreur serait facile à éviter.' This is followed by illustrative cases. There is a mass of interesting material in this volume, as will appear from the titles given in the foot-note.* The lectures on hysterical paresis, on the pitch of percussion-sounds, diaphragmatic pleurisy, the arthritic diathesis, and especially that on bronchial adenopathy, are perhaps the best, where all, or almost all is good. The author will pardon us for reminding him that the effects of posture on the pulse, in regard to which he seems to claim priority, were first pointed out by Dr. Marshall Hall, and were investigated many years ago by Dr. Guy, of King's College.

Dr. Gueneau de Mussy pays great attention to therapeutics. His remarks on the choice of remedies for anæmia, on the use of mineral waters, on the disadvantages of silvering pills, and the like, abundantly prove the study he has devoted to this too oft neglected department of medicine. Amongst the remedies highly prized by him in arthritic, dyspeptic, tuberculous, scrofulous, and some anæmic cases is the mineral water of La Bourboule, which issues from the soil near Mont Doré, rich in arsenate of sodium, containing, according to Thénard, twenty milligrammes of this salt in each litre. The composition of the water, according to later analyses, is as follows:

	Grammes per litre.	Grains per gallon.
Arsenate of sodium }	0.014 to 0.020	0.98 to 1.27
Chloride of sodium }	3.34	234.5
Bicarbonate of sodium }	2.27	159
Carbonic Acid }	0.38	26.6

'A composition which may justly be considered unique, as far as all the other European spas are concerned.' A foot-note to p. 246 has the following sensible remarks on prescribing.

'Because, in by-gone times, the most heterogenous mixtures were used, or rather abused, in medicine, some physicians cover with ridicule, and seek to crush under the nickname of polypharmacy, the combination in a prescription of medicines not chemically incompatible, and tending to one end. This exclusiveness, now very prevalent in Paris, does not commend itself to my mind as logical. If you are experimenting on the action of a given remedy, isolate it by all means, as perfectly as possible; but if your object be to benefit your patient by using

drugs whose action you believe you know, what possible objection can there be to combining them, if not chemically incompatible, and if the stomach will tolerate the compound? In a battle all sorts of weapons are used simultaneously, and their action is concentrated on the point judged most important. This pharmaceutical purism seems to me exaggerated; but I must not be understood as recommending mixtures when a single drug is sufficient, or as wishing to recur to the age of elixirs and electuaries. *In medio stat virtus.*'

The publishers have evidently taken great care in the printing, and the editors in revision, for the number of misprints is exceedingly small.

W. B. WOODMAN, M.D.

MISCELLANY.

THE ROYAL IRISH ACADEMY has given its sanction to the following grants, among others, from the fund placed at its disposal for aiding scientific researches by providing suitable instruments and materials:—25% to Dr. Handsel Griffiths, for 'Experiments on the Effects of Certain Drugs on the Circulation,' and 25% to Dr. Reuben Harvey, for 'Researches on Staining Reagents used in Histology.'

GIRLS OF THE PERIOD.—The following strongly contrasted sketches of 'the English Girl and the American Young Lady' are taken from a review in the *American Quarterly Journal of the Medical Sciences* for January, of a work on primary education called *The Building of a Brain*, by Dr. Clarke, of Boston, the author of *Sex in Education*. The reviewer begins by stating that in English schools for girls the diet is simpler and more nutritious than in similar American establishments; that the meals are better arranged and that more time is allowed for them, and that out-door exercise is more strongly insisted on. Sleep is closely attended to; girls of seventeen or eighteen are usually sent to bed at nine o'clock; in many schools no books are allowed after eight. 'Tranquillity of life is enforced; up to eighteen the girl sees almost nothing of society, even in her own home. She does not frequent public entertainments, and knows little and cares less what is going on in the outer world. Especially is she free, at school or home, from pernicious rivalry and competition. No public examinations or graduations are dreamed of. Her tasks are lighter than those of her brothers, and she never comes into competition with them. Public opinion places a higher estimation upon sound vigorous health than with us. Sickliness and pallor are not admired; young men seek healthy wives, not interesting invalids. What a contrast does this picture present to what we daily see around us. The hearty, simple-minded, ruddy English girl, fed and exercised with a care which *we*—shame to us—give only to our fast horses, remaining a girl till nature has fully transformed her into a woman, and then blooming into a noble womanhood with a capacity perfectly to discharge her duties in all relations. On the other hand the thin and haggard, or pallid and puffy damsel, hard-studying, meal neglecting, chocolate-eating, pickle-devouring, sleep-contemning, who despises walking exercise, who in cold weather spreads her skirts over the scorching blasts of the "register," and who will go to her parties and balls even if obliged to plunge her feet into ice-water to arrest a vexatious function! Look at the girl and woman on the one side and at the factitious "young lady" on the other, and see which promises best to the land that breeds them.'

* The subjects included in this volume are, after some introductory chapters on the principles of clinical medicine and therapeutics: Congestion, in general, and Menstrual Congestion, in particular; Derivation in Medicine; Insomnia, Vertigo; Mercurial Tremors; Hysterical Paralysis; Paresis of the Third Nerve; Perineuritis Optica and Retinal Apoplexy; Tumour of Brain; Lead-Palsy; Reflex Sensibility; Chlorosis; Public Health; Rheumatism, Acute and Chronic; Gout; Atheroma of Arteries; the Arthritic Diathesis; Pericarditis; Heart-Disease; Thoracic Aneurisms; Asthma and Pulmonary Tuberculosis; Cauterisation of the Larynx; Phthisis; Emphysema; Hay-Asthma; Bronchial Adenopathy; Cough; Tonality or Pitch of the Organic Sounds; Modifications of the Diameter of the Chest; Diaphragmatic Pleurisy; and Thoracentesis in Effusions of long standing.

THE MORTALITY AMONG 'RHEUMATIC RISKS.'—The *New York Medical Record* for March 13 contains an interesting paper by Dr. Huntingdon on the rate of mortality which exists among what are called in life-assurance phraseology 'rheumatic risks,' that is among those policy-holders who in filling up their proposal papers are obliged

to confess to having suffered from some form of rheumatism, from 'slight muscular' to 'acute inflammatory.' On searching the records of his office he found 844 such 'cases, and among these 114 deaths had occurred. The average age at death of these 114 policy holders was forty-six years nine months. As regards the causes of death, 21 out of 114 (18.42 per cent.) died of heart disease; 22 (19.29 per cent.) of brain disease and 4 (3.5 per cent.) of dropsy; doubtless many of these deaths from 'brain disease' and dropsy were also due to heart disease. Among the policy-holders who at the time of their acceptance had, according to their own account, never suffered from rheumatism, the deaths from heart disease were under 4 per cent; those from brain disease were 11.39, and from dropsy 1.8; the number of deaths from these causes among all the insured being respectively 5.6, 12.3 and 2 per cent. Taking into consideration the ages at the time of insurance, the mortality amongst these rheumatic risks should have been 30.57 per 1,000, the actual mortality was 54; and even amongst those who confessed only to 'slight occasional' pains the mortality was 31 instead of 29.35. Some allowance must probably be made from these figures, not only for a few cases of intentional misrepresentation, but also for the great tendency to make light of these ailments which is common among presumably honest applicants for insurance; otherwise these results would seem to prove that even a slight tendency to rheumatism is a more serious matter than it has been hitherto considered by the profession in general. And, since cases of well-marked rheumatic diathesis are refused by all offices, and consequently do not appear in the above returns, it follows that great caution is necessary on the part of life offices in accepting any rheumatic subject; though, as Dr. Huntingdon says, 'Rheumatism is so common that were we arbitrarily to exclude all who say they have had it life offices would scarcely be able to do business.'

MARRIAGE OF COUSINS.—Mr. Darwin lately read a paper before the Statistical Society on marriages between first cousins in England and their effects. The subject was divided into three separate heads—(1) the proportion of first cousin marriages to all marriages; (2) inquiries in asylums as to the harm likely to arise from such marriages; (3) literature on the subject. With regard to the first it would appear from a series of carefully prepared statistics, compiled from Burke's *Landed Gentry*, the 'English and Irish Peerage,' and the General Registry of Marriages at Somerset House, that such marriages are in London, including all classes, about 1½ per cent.; in the urban districts about 2 per cent.; in the rural districts about 2¼ per cent.; in the landed gentry about 3½ per cent.; and in the aristocracy, probably 4½ per cent. Answers with respect to the parentage of 4,308 out of 8,170 patients in lunatic and other asylums and hospitals were obtained; 142 to 149 of these were stated to be offspring of first cousins, that is to say, nearly 3½ per cent. Similarly, out of 514 patients in Scotland, 5½ per cent. were found to be offspring of first cousins. From the fact, then, that the percentage of offspring of first-cousin marriages is so nearly that of such marriages in the general population, the negative conclusion only is to be drawn that, as far as insanity and idiocy go, no evil has been shown to accrue from consanguineous marriages. Mr. Darwin was of opinion that the percentage of such offspring in asylums is not greater than that in the general population to such an extent as to enable any one to say positively that the marriage of first cousins has any effect in the production of insanity or idiocy, although it might still be shown, by more accurate methods of research, that it is so. With respect to deaf mutes, the proportion of first-cousin marriages is precisely the same as the proportion of such marriages for the large towns in the country. On the third head of his subject, the lecturer stated that the most thorough investigation ever made was contained in some papers *On Blood Relationship in Marriage*, published by Dr. Arthur Mitchell, a Deputy Commissioner for Lunacy in Scotland. This gentleman's inquiries were confined

chiefly to Scotland, in which country the proportion of first-cousin marriages is larger than in any other portion of the United Kingdom; and the conclusion he arrived at was that, under favourable conditions of life, the apparent ill-effects were frequently almost *nil*, while if the children were ill-fed, badly housed and clothed, the evil might become very marked. This, said the lecturer, was in striking accordance with some unpublished experiments of his father's, 'On the In-and-in Breeding of Plants,' in which he found that in-bred plants, when allowed space enough and good soil, would frequently show little or no deterioration; but when placed in competition with another plant, would frequently become stunted or altogether perish. Reference was also made to a work by Professor Mantegazza of Pavia, on the same subject, in which it is contended that consanguineous marriages are, on the whole, more unfavourable to the offspring than others, and that the nearer the kinship the greater the danger. Mr. Buxton, of the Liverpool Institution for the Deaf and Dumb, in the *Medico-Chirurgical Journal* for January, 1859, found one deaf mute in ten to be the child of first cousins; Dr. Peet, of the New York Institution, gives the same proportion; Mr. Lewellyn Pratt, in the *American Annual of the Deaf and Dumb*, January, 1869, found that out of 110 deaf-mute children in Halifax School, fifty-six were the offspring of first cousins; and Sir W. Wilde, discussing in an appendix to his *Aural Surgery* the causes of deaf-muteness, considers consanguinity may be regarded as paramount. In conclusion, Mr. Darwin held that such a general consent as to the ill-effects of cousin marriages would have far greater weight than his 'purely negative' results. But in no case had the investigation been free from flaws, for in no case had it been really determined what was the proportion of consanguineous marriages in the whole population. He trusted, however, that though he himself had been unable to give a satisfactory solution of the question he had raised, he had said enough to show that the assertion that the question had been already set at rest could not be sustained, and he hoped that his endeavour might lead more competent investigators to take it up from some other side.

THE GAS QUESTION.—The attention of our readers is earnestly invited to a modern invention, by adopting which they will be able to dispense with gas in daytime, thereby evading the advance imposed upon consumers by the various companies. The invention we allude to is Chappuis' Patent Daylight Reflectors, manufactured at 69 Fleet Street, London.—[ADVT.]

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The London Medical Record.

WEDNESDAY, APRIL 14, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

PANUM ON THE NUTRITIVE VALUE OF ALBUMINATES FROM THE BLOOD AND OF MEAT-SALTS.

Panum (*Nordiskt Mediciniskt Arkiv*, vol. vi. no. 19) doubts the validity of the conclusions of Liebig, Kemmerich, and Lehmann, on the nutritive value of the salts contained in meat, and the alleged uselessness without them of the albuminous residues left in the manufacture of extract of meat.

To investigate this point, he fed dogs on varied diet, either composed of meat alone or with starchy matters, fat and salts, or else of barley-broth, etc., without meat, and compared the results thus obtained with those gained by feeding the animals on powdered albuminous matters, without salts, obtained from blood by a special process; these being mixed or not with starch, fat, water, etc., and either with or without the addition of the 'meat-salts' and table-salt.

[The albuminous matters were obtained from ox-blood by diluting it with water, boiling, neutralising with a small quantity of acetic acid, and filtering; the mass being then pressed, completely dried and ground, and the whole process occupying only a few hours. The powder thus obtained will keep unchanged for years; it contains 10 per cent. of water, and 1 per cent. only of ash.]

The 'meat-salts' given were thus composed: 30.36 per cent. potash, 26.88 per cent. phosphoric acid, 19.25 per cent. soda, 23.52 per cent. chlorine.

[The variations in the weight of the animals were very carefully taken, as also the quantities of food-salts, etc., consumed, and of fæces, urine, urea passed, both on certain days of total abstinence, and when placed on different diets. It was found very necessary to humour the appetite of the animals.]

The chief results were as follows. 1. A certain quantity (about 8 per cent.) of the powdered albuminates given as food passes away with the excrement, but the greater part (92 per cent.) is received into the blood for nutrition. 2. Eighty-four grains of this powder appears to be equivalent, as measured by the amount of urea produced to 375 grains of dry horseflesh. 3. Carbon contained in albuminous matters (and especially in this form) is more valuable in preserving the weight of the body than the carbon in starch or fat. The loss by insensible perspiration is much greater after eating starch or fat than after albuminous matters, perhaps from more rapid combustion in the latter case. When powdered albuminates are compared with a diet of barley and fat, the difference is in the proportion of two to one. 4. The addition of phosphate of potash to a diet composed of the powdered albuminates with starch, fat and water, did not increase its nutritive value, as shown either by the production of urea, or in preserving the

weight of the body. The chief result was that the animal drank more water, and lost more by insensible perspiration. 5. A dog may be kept in good health on a mixture of barley, fat, water and common salt, for more than three months, showing that this diet contains sufficient salts. It was also found that the deficiency of salts in the powdered albuminates could be perfectly supplied by barley. 6. The powdered albuminates have a marked effect in augmenting the colouring matter of the blood-corpuscles, while this is diminished by a non-nitrogenous diet (starch, fat, and water). 7. It is possible, and even *à priori* very likely, that a certain quantity of phosphates and of potash is a necessary part of food; but this quantity must be very small, since grain, such as barley, contains enough to compensate the deficiencies of another diet in this respect.

The author did not see, till after his own researches were concluded, the memoir of Forster, in which it is shown that a certain quantity of the salts proper to the organism is a necessary constituent of food. In respect of the quantity, Forster's conclusions do not conflict with those of Panum, since both agree that the necessary amount is extremely small, and that it is found in almost all articles of food.

J. F. PAYNE, M.B.

BERNHARDT ON PROGRESSIVE MUSCULAR ATROPHY.

At a meeting of the Medical Society of Berlin (*Berliner Klinische Wochenschrift*, March 8 and 15, 1875) Dr. Bernhardt described two cases of progressive muscular atrophy occurring in the same family, in which also other instances of the same fatal malady had been met with. In the younger of the two brothers, the disease was in an earlier stage. The younger brother (Otto) was eleven years and nine months old. His size was about the average for his age, and beyond that of general weakness he made no complaint. His appetite was normal and digestion good; he slept soundly. He was, however, only slightly built, and his muscular system was feeble. The skin was soft and pale. His integuments, especially about the thighs, were mottled; the hands and feet also occasionally became faintly cyanosed; the temperature of the surface was normal. Nothing particular was observable in the shape of the skull. The organs of sense were intact. The voice and speech and deglutition were also perfect. The muscles of the upper extremity, and of the neck and chest, were but slightly developed. The circumference of the arm at the insertion of the deltoid was fifteen centimètres (5.86 inches); of the forearm, a hand's breadth below the elbow-joint, fifteen and a quarter centimètres (5.95 inches); the muscles of the hand were well developed, and all the finer movements, such as in writing, etc., were perfectly performed. The muscles of the thigh were not wasted. The calf felt firm but not unduly hard. Both feet had a slight degree of *talipes equinus* malformation. He could stand alone, but straddling, stepping on his toes, with the heels raised from the ground. Both shoulder-blades projected backwards. In the erect posture, a curvature of the spine was very evident in the lumbar region. When sitting, he could only rise by giving his body a swing, so as to bring both shoulders forward. When recumbent, he could with difficulty move his head from the horizontal position. The joints from the hip to the toes were severally movable, but their combined movements

were not easily performed. To rise from the recumbent posture, he exerted himself to a peculiar movement of the entire trunk from side to side, supporting himself with his hands on the floor, flexing the thighs on the body, and then with hands and arms climbing up from the ground. His gait was waddling, and the slightest obstruction caused him to fall. The electrical excitability of the muscles was depressed.

The next case was the elder brother of the preceding patient.

H. M., aged sixteen, went about like other boys until he was ten years old. For the last five years he had been altogether confined to the house. He was reduced almost to a skeleton, his muscular and bony structure being highly defective. He was free from fever. His intellect, owing to his illness and external relations, was imperfectly developed; still he could read and write and converse with those around him, and express his thanks for attentions and kindness. He slept well, had a good appetite, and his bowels and bladder acted with regularity. His head was large, his ears prominent, the lobe of the left ear most so. The organs of sense were unimpaired. The expression of the countenance was dull and unsympathetic. The head moved freely to either side. The left shoulder was rather depressed compared with the right. The vertebral column was curved, with its convexity to the right, in the dorsal region. The circumference of the upper arms was about equal, viz., twelve and a-half and thirteen centimètres (4·9 and 5·1 inches) round the upper third. If the patient reclined his occiput upon anything, he could not again raise it without help; nor could he raise or rotate the arms at the shoulder-joints. Both forearms were somewhat bent upon the arms. Slight movements of pronation and supination were effected with ease, but flexion was impeded. The muscles of the ball of the thumb and interosseous spaces were wasted. The thighs were bent on the pelvis and resisted flexion. The adductor muscles were not contractile. The feet had the *pes equinus* deformity. The measurement of the middle of the left thigh was 18½ centimètres, of the right, 18½ centimètres (about 7·1 to 7·2 inches). The right calf measured 17½ centimètres (6·8 inches), the left 18½ centimètres (7·1 inches). The standing position was impossible. For the last five years the patient had been confined to the half-sitting, half-lying posture. The pelvis was displaced, so that the left iliac spine was higher than the right. The trunk could not be raised from the recumbent posture without help. Locomotion was only performed by alternately stretching and bending the lower extremities. He moved his feet and toes freely.

The skin was throughout white and soft. The infraclavicular fossæ were deep. The pectoral muscles seemed to be wanting. The pulsations of the subclavians could be seen distinctly. The thorax was flat; the intercostal spaces wide, their furrows scarcely perceptible. The impulse of the apex of the heart was visible in the fourth and fifth intercostal spaces. Synchronous with this an impulse was visible in the second left intercostal space; at this point also a systolic tremor could be felt, and a diastolic murmur was audible. The radial pulse varied from 90 to 100, was feeble and compressible. A systolic murmur was audible in the carotids. Some mucous râles were heard in the lungs. The patient had had cough for some time. The sensibility of the integuments, so far as it could be made out,

appeared normal. The electrical excitability of the muscles was greatly lowered.

The patient's father had not suffered from any similar affection. He had died at the age of thirty-eight from some chest-affection. The mother was still living, healthy, and active. Seven sons (no daughters) had been born to these parents, of whom four were living. Two of these, aged respectively twenty and twenty-two, were healthy. Two others were invalids, and had already been spoken of. Three brothers, who died from a similar malady, sank from disease of the lungs. The father, mother, brother and sister of the parents were alive and perfectly healthy, as were also their offspring. Hence no hereditary tendency could be shown, nor could the influence of adverse external circumstances account for the appearance of the affection in these individuals, since the family were prosperous landed proprietors.

The children, one and all, including the deceased, learned to walk at the ordinary time, although there had always been a peculiarity in the gait of the children referred to.

Dr. Bernhardt observed that there were here seven sons of parents not the subjects of any nervous affections, of whom five were the victims of this malady, and to which three had succumbed. A tendency to the disease, and its appearance in several members of the same family, had often been noticed (see Friedrich *On Progressive Muscular Atrophy*), in progressive muscular atrophy, and in pseudo-muscular hypertrophy.

A question here suggested itself, whether, considering the relative size of the calves and the glutæi, and the slight degree of atrophy of other muscles of the body, these cases should be regarded as cases of progressive muscular atrophy, or of pseudo-muscular hypertrophy. Unfortunately, the mother had not noticed the state of the muscles of the calves in the other children. If, however, it were remembered, that cases of pseudo-hypertrophy seldom occurred without more or less atrophy of some of the other muscles; and if it were borne in mind that, according to the latest investigations, no essential difference exists in the condition of the muscles, but that the apparent difference is dependent upon secondary circumstances, it would not be necessary to enter into controversy upon mere names, but the views of Friedrich might be adopted, that both are modified forms of myopathic disease.

W. B. KESTEVEN.

LEFFERTS ON THE REMOVAL OF A BRASS RING LODGED IN THE LARYNX FOR FOUR YEARS.

Dr. Lefferts describes, in the *New York Medical Record*, an interesting case in which he removed a foreign body from the larynx by subhyoidan laryngotomy.

The patient, a child six and a half years old, came under Dr. Lefferts' notice in the summer of 1874 suffering from aphonia, and from serious and protracted attacks of laryngeal spasm. Four years previously she had accidentally swallowed a small ring, about the size and thickness of a modern wedding ring, but which, after its removal, was ascertained to be a locket-ring made in one piece, with a division at one portion of the circle. Urgent dyspnoea immediately followed; the child became

cyanotic and unconscious, and suffocation seemed imminent, until one of the bystanders, passing her fingers deeply into the child's throat, felt the ring and pushed it downwards. This act was followed by immediate improvement in the respiration. The child recovered consciousness, and soon afterwards was able to run about and play. On the physician's arrival, a short time later, various instruments were passed into the throat in order to seize the ring, but without success; and, no foreign body being met with during the examination, it was supposed to have passed into the stomach, and further attempts at removal were abandoned. Cathartics were administered, and the evacuations were carefully watched, but the missing body was not found. The child's respiration is stated to have remained good during the rest of the day of the accident, but the same night the mother noticed that it was decidedly stridulous, and said that it since remained so. The child, however, had not had any attacks of laryngeal spasm. Deglutition had not been affected. Immediately after the accident the child became partially aphonic, and continued subsequently in the same condition.

When seen by Dr. Lefferts she was suffering from frequent paroxysms of dyspnoea, was aphonic, and had a short hacking cough, which had commenced a few hours after the ring was swallowed, and persisted since that time. A laryngoscopic examination showed two-thirds of the ring lying obliquely across the larynx. One extremity of the ring appeared to pass downwards and forwards at the middle-third of the left ventricular band, the circle of the ring being continued backwards and upwards to the pharyngeal wall over the arytenoid commissure, then forward to the hyoid fossa, where it was lost to view. The ring thus encircled the left ary-epiglottic fold and ventricular band; but, except where it passed deeply into the tissues, it did not come into contact with the larynx. The ary-epiglottic fold was swollen and œdematous, and the ventricular band irregular and thickened. The ring had undergone little corrosion but was in parts discoloured. Owing to the tender age and nervous temperament of the patient, it was impossible to secure the co-operation necessary for laryngoscopic treatment. Repeated laryngoscopic examinations, made under great difficulties, furnished the most important evidence as to the exact situation of the foreign body. On July 7, 1874, after first inserting a cannula in the trachea, Dr. Lefferts performed subhyoidan laryngotomy. An incision three inches in length was made parallel with the lower border of the hyoid bone, and one inch below it, transversely across the neck; and, the tissues being carefully divided on each side of the median line upon a director, introduced successfully between the various layers, the thyro-hyoid membrane was reached and laid bare without difficulty, and with very little hæmorrhage. Two rather large veins, which lay across the track of the wound, immediately below the platysma, were tied. The thyrohyoid membrane was now divided by an incision of less extent than the one through the superficial parts; and a funnel shape being thus given to the wound, the cushion of cellular and adipose tissue lying between the base of the epiglottis and the parts external to it, together with the laryngeal mucous membrane on each side of it, were disclosed; the latter was prolapsed outwards, as soon as the tense pressure of the thyro-hyoid membrane was removed, and could be seen to be drawn inward

with each inspiration. After having reached this point in the operation, Dr. Lefferts inserted a tenaculum into the cellular and adipose mass, and by means of it drew the epiglottis forcibly downwards. This put its ligamentous attachments to the hyoid-bone and tongue upon the stretch, drew it away from the former, and left an appreciable interval of space between them, through which the knife—its point directed upwards and backwards, and kept near the hyoid bone—was readily passed, and was found to have penetrated the mucous membrane between the tongue and the epiglottis. An excellent view of the upper part of the larynx was obtained, and the ring, on being rotated, was easily removed through the external opening. The wound was at once closed by sutures, the divided edges of the mucous membrane having been first brought together by fine thread sutures, the knots of which were tied so as to lie inwards. Owing to slight inflammation of the epiglottis, the tracheal tube could not be dispensed with till the thirteenth day. The wound healed on the twenty-first day, and the patient was discharged 'cured,' though the voice does not appear to have been quite normal at the time.

[This case is reported in considerable detail for several reasons. Not only is it the first recorded case in which subhyoidan laryngotomy has been performed for the removal of a foreign body; but Dr. Lefferts has considerably modified the method of operation as recommended by Malgaigne, and has shown that it is possible to obtain a most satisfactory view of the larynx by subhyoidan laryngotomy without wounding the epiglottis. In a similar case in an adult it would probably be better to perform tracheotomy, and then remove the foreign body *per vias naturales*; but in the case here detailed, no doubt the plan pursued by Dr. Lefferts was the very best that could have been adopted, and the mode of carrying it out reflects great credit on the operator. —*Rep.*]

LAUNSCHIRM ON METRORRHAGIA AFTER ABORTION, IN THE FIRST HALF OF GESTATION, ENDANGERING LIFE, WITH RETENTION OF THE PLACENTA.

In an article communicated by Dr. Launschirm to the *Medinisch-Chirurgisches Centralblatt* for January 1 and 8, 1875, he says that Lumpe, when speaking of placenta prævia, remarks that 'the first drops of that ceaseless stream of blood arouses with its fearful foreboding the medical practitioner, to the working of that incurable cause; with un-wished-for fidelity his memory recalls misfortunes experienced under similar circumstances. He requires his whole moral strength, steelled by firm self-reliance on the oft-tried capability of action, and a habit of looking danger calmly in the face, in order to secure that calmness of reflection, discretion and courage in action, without which the (scientific) accoucheur ought never to approach the bedside; without these qualities his work may be equally as injurious, nay, murderous, as with them it may be beneficent in its action.'

Those who have had experience in like cases can realise the fidelity and truthfulness of this description and the enormity of the peril.

In the middle of the night the writer was summoned to the wife of a professional brother who had aborted two days previously, without any excessive

loss of blood. During the absence of her husband on the second day, she had got up and proceeded to attend to her household duties; towards evening, on account of the continued pains and flow of blood which had set in towards midday, she was compelled to go to bed, when she fainted. On her husband's return in the evening, he injected ice-water into the vagina, plugged it with cotton-wool steeped in a solution of perchloride of iron, and applied cold-water fomentations to the abdomen, all without the least benefit. In the meantime, the hæmorrhage increased in violence, and the fainting fits became more frequent. Dr. Launschirm found the patient in a state of extreme collapse from loss of blood; in fact, it was hardly possible to imagine a higher degree of anæmia compatible with life. A vaginal examination showed that passage to be filled with coagula, in addition to the tampon. The external and internal os allowed the introduction of the forefinger. The body of the uterus was made out to be enlarged, probably distended with blood and the secundines, with the lower segment narrowed and contracted. This exploration renewed the hæmorrhage, which had somewhat diminished: to have at once proceeded to empty the uterus of its contents would have been to have snuffed out the life of the patient. Measures had to be directed to counteract the imminently fatal collapse by restoratives, and to reduce the strong uterine contractions of that distended organ to a minimum, and also to arrest the consequent hæmorrhage for a short time, in order that the patient might recover a little. This was attained by introducing Braun's colpeurynter into the vagina, distending it with ice-water, and renewing the contents every half-hour; at the same time giving table-spoonful doses of mulled wine every five minutes, and a hypodermic injection of morphia was also made over the pubes. The hiccough, which was very distressing, was treated with iced soda-water and small lumps of ice. The vomiting was removed, but heartburn ensued. With the exception of ice and soda-water, all medication was withdrawn; a solution of warm wine and camphor was applied to the pit of the stomach by means of wet cloths, and beneath the arm-pits and the bends of the large joints. This method Dr. Launschirm strongly advises in extreme collapse, when the stomach refuses to retain nourishment.

This treatment had the desired effect; the temperature rose, the heart-beats became stronger and rhythmical, the sickness ceased, and the hiccough less; the uterine contractions less frequent, and the hæmorrhage almost entirely stopped. At noon on the next day he proceeded to empty the uterus of its contents. The colpeurynter was withdrawn, and with it came a dark, almost black clot, which from its consistence and form had evidently not been formed between the caoutchouc bag and the uterus by the blood trickling down, but had been expelled from the uterus. The os was considerably wider, admitting the fore and middle fingers into the cavity of the uterus. Six introductions of the fingers were necessary, entirely to remove the contents of the organ; with the last was brought away a rudimentary placenta attached to the normal placental site. A tightly drawn abdominal binder was applied, in order to prevent hæmorrhage and favour involution of the uterus. [According to the doctrine of the American accoucheurs, a tightly drawn binder maintained for any period beyond thirty-six hours, acts as an impediment to involution

by preventing the backward flow of blood and causing hyperæmia of the placental site.—*Rep.*] The treatment had to be applied with great care, as any movement of the patient caused fainting. To relieve the anæmia of the brain the foot of the bed was raised half a foot with the most gratifying results. Quinine was administered internally, and at a later period of convalescence iron was added. The patient made a good and rapid recovery.

The author incidentally remarks that the process of involution after abortion is retarded and irregular. The metrorrhagia in this instance is viewed by the writer as an autochthonous process, rising neither from any known extraneous influence nor from any demonstrable essential disease of the uterus, nor from any previous acquired physical changes, but from an intense hyperæmia, with superadded uterine contractions. As a sequence thereon, a rupture of the utero-placental vessels might be considered probable, which took place, at first, perhaps a week before the death of the fœtus and expulsion of the child, and which occasioned the hæmorrhage. These suppositions are supported by:

1. The relative good health of the patient up to eight or ten days before the abortion;
2. The tumour in the abdominal region not having been previously perceptible;
3. That about eight days before the expulsion of the ovum she became unwell, with perceptible painful uterine contractions, compelling the patient to keep her bed for a few days;
4. The colour, consistence, and quantity of the blood found in the cavity of the uterus;
5. The proved enlargement of the uterus made out by the bimanual examination after the abortion, and the then already life-endangering bleeding.

A displacement of the uterus was possible, which tended to produce, in an extreme measure, hyperæmia of the organ, acting mechanically on the process of gestation. It might have been present before the introduction of the colpeurynter, which may have reduced it.

Worthy of note was the range of temperature which, when its body was cold and pulseless, was not lower than 94° Fahr., and which rose to 98·6° Fahr. as soon as the patient showed signs of reviving; fluctuating, however, between 95° and 98·6° Fahr. during the interval of observation.

W. C. GRIGG, M.D.

ANATOMY AND PHYSIOLOGY.

MAYER ON RESPIRATORY MOVEMENTS.—It has been observed, that by the stimulation of certain inhibitory nerves in the vagus, a longer or shorter pause of the heart's action is produced. The disturbances thus caused in the normal circulation, Dr. Sigmund Mayer has utilised in study of some questions connected with respiration (*Sitzungsberichte* of Vienna Academy, Band lxi.).

The experiments were made on dogs; (for details of the method, we must refer to the memoir). A stoppage of the heart, lasting at least eight to ten minutes, can be produced as indicated. It is best to stimulate the right vagus, as this has a greater inhibitory action than the left. During the heart-pause, the respirations become quicker and deeper. If, now, the stimulation be stopped, so that, with returning heart-contractions, the blood-pressure

quickly rises again to its former state, there follows on the deep and quick respirations, a complete stoppage of breathing, which may last for half a minute. If the stimulation of the vagus be continued so long that the heart begins again spontaneously to beat, though more seldom than before stimulation, it is found that the respirations, which had become quick and deep, now, on renewal of the heart-beats, are separated by long pauses, or entirely cease. If the stimulation be stopped after a short heart-pause has been produced, so that a series of quick pulses follows, and then the vagus be again stimulated, renewing the heart-pause, there follows a longer pause in the breathing. The experiments yield essentially similar results when, besides the vagus subjected to stimulation, that of the other side also is cut.

The stoppage of breathing is in the position of expiration. This is indicated by the curves, also by the fact that, in emerging from that state, the animal begins with an inspiratory movement.

Dr. Mayer offers the following explanation of the phenomena. By stoppage of the heart we stop the transmission of blood to the brain; and the blood, which now stagnates in the latter, becoming impoverished in oxygen, stimulates the respiratory centre, causing quicker and deeper respirations (dyspnœa).

But these quick and deep respirations have evidently the effect of an excessive arterialisation of the stagnating blood in the lungs (greater than can be produced by blowing air into lungs with a bellows). Now, when the heart begins to act again, a current of highly arterialised blood is sent to the brain-centres, and such (as has been shown) is not capable of causing respiratory movements. This stoppage of breathing is an apnœa which hitherto appears only to have been produced by injection of air with a bellows.

This method, the author points out, has advantages over that with bellows. It is more simple and direct. The change is wrought by the animal's own vital functions; and the effects of variation in the quantity of oxygen and carbonic acid in the blood upon the respiratory centre, are compressed into a comparatively short space of time.

He next brings evidence in support of his explanation. It has been shown before that dyspnœa can be produced by stoppage of the blood-circulation; some observers having done so by cutting off the supply of blood to the brain. Then as to the apnœa, produced by over arterialised blood; if the deep and quick respirations were, in some way, prevented from so affecting the blood, the cessation of breathing should be excluded. It is actually so: if the animal, during stoppage of its heart, be made to breathe, not free atmospheric air, but from an enclosed space, by a narrow connecting piece, rendering the exchange of gases difficult, there is no stoppage of respiration, and the dyspnœic effects continue. The same result is had, if, during stoppage of the heart, the trachea be closed.

Some might, perhaps, say that the apnœa is not due to direct influence of the highly arterialised blood on the respiratory centre in the brain; but to changed reflective action on that centre, through excitation conducted from the periphery, especially the excitation shown by Hering and Braun to arise from artificial inflation of the lung, and propagated by the vagi. In reply, Dr. Mayer points to the fact that the results were not affected though the second vagus was also cut. Besides, the animal emerges

out of its still state, in the other case (of inflation of the lungs), by an expiratory movement.

Dr. Mayer points out, that the above method of changing the velocity of the blood-current in the lungs may be variously used for regulating, within certain limits, the proportion of gases in the blood; further, that in all experiments on respiratory movements it is indispensable to have exact control over the action of the heart, so as to be able to distinguish the alterations in the breathing-movements produced by changes in the circulation, from those produced otherwise (nerve-stimulation, etc.); and lastly, that this method of making an animal apnœic is well suited for lecture experiments.

PATHOLOGY.

OGSTON ON CONGENITAL MALFORMATIONS OF THE LOWER JAW.—Dr. Ogston (*Glasgow Medical Journal*, July, 1874) has very carefully collected from various sources a number of cases of congenital malformation of the lower jaw. The chief authorities quoted are Vrolik, Otto, Langenbeck, and Smith of Dublin. A case occurring in the practice of Mr. De Lessert, of Aberdeen, is also given. Dr. Ogston has, however, overlooked two cases of arrested development of the ramus of the lower jaw; one recorded by Mr. Edwin Canton (*Pathological Society's Transactions*, vol. xii. 1861, p. 238), and a second specimen described by Mr. Charles S. Tomes in the *Transactions of the Odontological Society*, March, 1872.

After discussing the points of interest connected with each case, Dr. Ogston concludes as follows.

1. Congenital deformities of the lower jaw are very rare.
2. Non-development of the lower jaw has been recorded in animals, but never in man.
3. Excessive development of the lower jaw appears to occur, though very rarely, and minutely recorded cases of it do not exist.
4. Preponderance of size of the lower jaw has been observed as the result of deficient development of some of the other facial bones.
5. Congenital smallness of the lower jaw occurs, and is generally associated with symmetrical deformities elsewhere.
6. Congenital smallness of the lower jaw may lead in after-life to acquired deformities of the bones of the cranium and face.
7. Congenital unilateral smallness of the lower jaw has been found in one case with, and in two without, malformation of the temporo-maxillary articulation of the same side, and coincided in all with asymmetry of the cranium.
8. Congenital dislocation of the lower jaw is said to have been met with in a single imperfectly recorded case.

OAKLEY COLES.

VOURY ON MENIÈRE'S DISEASE.—Dr. Voury, in his *Thèse de Paris*, 1874, gives the following conclusions on this disease. It is an affection characterised by deafness, buzzing in the ears, and attacks of vertigo, generally accompanied by serious troubles of equilibrium, by a syncopal condition, nausea, and vomiting. The lesion is in the labyrinth; it is of a congestive, inflammatory, or traumatic nature. Menière's disease may either be primary, secondary, or traumatic. It should be distinguished from auricular vertigo simply by the serious character of the deafness upon which Menière has insisted, and which is the index of the lesion. The nervous accidents, according to the majority of physiologists, are probably phenomena of reflex action. The deafness

is incurable. Voury, however, in the course of his work, recommends the application of the actual cautery or a seton behind the ear, according to the advice of Professor Charcot, and bromide of potassium or chloral for the nervous symptoms.

RECENT PAPERS.

- Pathological Anatomy of Pulmonary Emphysema. By Dr. Cornil. (*France Médicale*, March 6.)
 Pathology of the Vaso-Motor Nervous System. By Dr. Jewell. (*Chicago Journal of Nervous and Mental Disease*, October, 1874.)
 On the Local Temperature in Paralysed Parts. By Dr. M. Schiff. (*Lo Sperimentale*, March, 1875.)
 On Tuberculosis. By Dr. Orth. (*Berliner Klinische Wochenschrift*, March 22.)
 Cancer. By Dr. G. Yeo. (*Irish Hospital Gazette*, April 1.)

MEDICINE.

BOUCHUT ON MEDICAL OPHTHALMOSCOPY AND CEREBROSCOPY.—M. Bouchut gave a special lecture at the Hôpital des Enfants Malades, of Paris, to a certain number of his professional brethren. As reported in *La France Médicale* of March 27, he first showed the anatomical and physiological relations of the eye with the brain or the spinal marrow, so as to make understood the influence of the cerebro-spinal lesions on the optic nerve, the retina, and the choroid. He then indicated the laws of the formation of intra-ocular lesions depending on diseases of the brain, spinal marrow, and meninges.

These laws are four in number. 1. Whenever the circulation is obstructed in the cranium, or in the sinuses or meningeal veins, in consequence of compression through distension of ventricles distended by serosity or any other cause, an arrest of the venous circulation occurs which produces swelling, hyperæmia, and cedema of the papilla, varicosity of the veins, and sometimes hæmorrhage in the eye. 2. When a tumour with encephalitis, or partial encephalitis, is present, a descending phlegmasia occurs which brings on sclerosis of the optic nerve, exudations which imprison the papilla, and eventually produce atrophy. 3. If it be the spinal marrow which is diseased by anterior or posterior sclerosis, since that organ, on account of its relations with the great sympathetic nerve, acts on the eye, papillary hyperæmia of the eye results, which in time brings on atrophy. This is what is seen in locomotor ataxy. 4. Finally, in all diatheses and in poisonings, when the whole organism suffers, the eye suffers like the rest of the body, and certain forms of neuritis or choroiditis result. After this preamble, M. Bouchut, by the aid of his luminous projection, showed on the wall specimens of all the ocular lesions produced by cerebro-spinal diseases. He showed the forms of spinal neuritis and those which result from locomotor ataxy, the neuritis and neuro-neuritis, produced by tuberculous, typhoid, or rheumatismal meningitis, by cerebral hæmorrhage and softening, by hydrocephalus and thrombosis of the sinuses of the dura mater, by chronic encephalitis, and encephalitis resulting from cardiac disease, by tumours of the brain, tuberculosis, syphilis, albuminuria, leucocythæmia, etc., and finally the neuritis resulting from paralysis of the sixth pair, in consequence of certain kinds of epilepsy, hallucination, contusion of the brain, etc.

In this way a hundred images were shown, the

most important of those which have been figured since M. Bouchut commenced his researches. He has thus opened a new road to the diagnosis of cerebro-spinal diseases.

ONIMUS ON TELEGRAPH CLERKS' CRAMP.—At the meeting of the French Society of Biology on March 20 (reported in the *Gazette des Hôpitaux* for March 23) M. Onimus stated that he had observed in telegraph clerks similar phenomena to those described as writers' cramp, and which the *employés* themselves have named the telegraphic disease. He gave particulars of the case of one clerk who had been employed for the last nineteen years in the telegraph office, and who began to feel symptoms of the disease ten years since. He first noticed that he could no longer clearly form the letters S, represented by three dots; I, represented by two dots; and U, represented by two dots and a stroke. He discovered at the same time that he felt a certain stiffness, a kind of cramp in the hand whilst forming these letters. The D, which is formed by a stroke followed by two dots, was much better represented than the U, which is formed inversely by two dots followed by a stroke. The clerk observing this, then tried to make use of the thumb only to write the letters telegraphically, and followed this plan successfully for two years; but at the end of that time the thumb was in its turn attacked. He then employed the middle and first fingers, but in two months they became like the thumb. He then tried the wrist, which was eventually affected in the same way as the fingers. When he endeavoured to work, the whole hand and fore-arm trembled. Sometimes he suffered from sleeplessness and a little cerebral excitement.

These accidents only occurred with the Morse instrument; and M. Onimus thinks that, if many of the *employés* are affected in a similar manner, the authorities should be asked to try some other telegraphic system.

JAMIESON ON A REMARKABLE CASE OF ASCITES.—Dr. Allan Jamieson, of Berwick-on-Tweed, relates, in the *Edinburgh Medical Journal* for April, the case of a woman who, after requiring the performance of paracentesis abdominis one hundred and thirty-three times on account of rapidly recurring ascites, made a perfect recovery. The cause of the effusion seems to have been obscure. The patient was a temperate woman, who had generally enjoyed good health, and the ascites came on gradually in 1869, her age being then sixty. She had no heart-disease, no albuminuria, never suffered from jaundice, and the size of the liver was normal, though Dr. Jamieson thinks he detected a nodular surface; the idea of ovarian disease was negated by Dr. Keith. The operations were all performed between April, 1870, and September, 1874; at one time the patient had to be tapped every week, three gallons being removed on each occasion. Towards the end of this period the fluid accumulated more slowly, but the interval between the 132nd and 133rd tapping was only three months. Since this last operation there has been no re-appearance of the dropsy; the patient now gets about actively, and is in excellent health.

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RECENT PAPERS.

- On Sick Headache. By M. Lasèque. (*Gazette des Hôpitaux*, March 27.)

On Influenza. By M. A. Pichard. (*Le Mouvement Médical*, March 27, 1875.)
 Differential Diagnosis of Emphysematous Dyspnoea and Cardiac Dyspnoea. By Professor G. Sée. (*La France Médicale*, March 27.)
 The Clinical Thermoscope. By Dr. E. Seguin. (*New York Medical Record*, March 20.)

Fresh Cases of Injurious Results from Forced Taxis. By M. D. Mollière. (*Lyon Médical*, April 4, 1871.)
 Case of a Young Girl completely Scalped by the Rotatory Shaft of a Steam-Engine cured by Skin-Grafting. By Dr. E. Burdel. (*L'Union Médicale*, April 1.)
 On the Dangers of Intrarectal Examination. By Dr. Robert Weir. (*New York Medical Record*, March 20.)
 On Inflammation of the Retrocalcaneal Serous Bursa. By M. Collin. (*Gazette des Hôpitaux*, March 26.)

SURGERY.

MANSON ON THE TREATMENT OF CONTUSIONS AND WOUNDS OF THE PERINEAL PORTION OF THE URETHRA.—Dr. Manson, in his *Thèse de Paris*, 1874, formulates the following rules for the treatment of these serious injuries, which may compromise the health of the patient after he has passed through the first symptoms. He says that, in contused wounds of the urethra, a *sonde à demeure* and perineal urethrotomy are the means to which recourse must be had. Perineal urethrotomy is principally indicated whenever the canal is destroyed to a great extent and catheterism is impossible. It should be performed with the least possible delay; and, if practicable, a *sonde à demeure* should be placed in the urethra before twenty-four hours have expired, for later on the swelling and the infiltration of urine sometimes make exploration difficult, and have thus rendered treatment unavailing. After perineal urethrotomy, keeping the penis elevated during the time the sound is left *in situ* is, Dr. Manson believes, a good means of avoiding inflammatory accidents, which for the most part are the result of the stagnation of the pus at the level of the suspensor ligament, this stagnation being in great part due to the flexion of the penis.

LABAT ON BUCCAL LIPOMA.—Dr. Labat, in his *Thèses de Paris*, 1874, has collected thirty-two cases of this affection, and has from these facts constructed a special chapter of pathology possessing great interest. These lipomata may occupy indiscriminately all points of the mouth, lips, tongue, gums, cheeks, roof of the mouth, soft palate, and palatine arch. Their essential characteristics are, to be situated directly under the mucous membrane; to form a distinct projection under it, and sometimes under the skin; and to show a transparent yellowish colour through the mucous membrane. They offer a peculiar sensation of softness to the touch, called lipomatous; thus their diagnosis is generally easy. They are easy of extirpation in consequence of their submucous situation, therefore they should be operated on through the mucous membrane, and not through the face; besides which, this proceeding presents the double advantage of rendering the operation harmless and avoiding disfigurement of the countenance.

RECENT PAPERS.

Bloodless Surgery. By John Chiene, F.R.C.S.E. (*Edinburgh Medical Journal*, April, 1875.)
 On a Case of Osteogenic Exostosis. By Paul Réclus. (*Le Progrès Médical*, March 27.)
 Reflections on the Treatment of Large Vaginal Hæmatocœles. By M. Ed. Schwartz. (*Gazette des Hôpitaux*, April 1.)
 Cases of Arterial Wounds treated by Direct Ligature. By Dr. Postetter. (*Gazette Médicale de Strasbourg*, April 2.)
 Cases of Phosphorus-Necrosis of the Jaws. By Dr. Haas. (*Ibid.*)

MATERIA MEDICA AND THERAPEUTICS.

CZERNICKI ON JABORANDI AS A SIALOGOGUE.—Dr. Czernicki, in the *Gazette Hebdomadaire* of April 2, states that he had studied the effects of jaborandi on healthy subjects, and had recognised how greatly its influence as a sialogogue exceeded its sudorific power; he had always estimated the quantity of saliva secreted after a dose of five grammes at about a pint and a quarter. Circumstances gave him the opportunity of studying the therapeutic value of this remedy on several cases of mumps which occurred in the garrison of Luneville, where M. Czernicki was head of the medical staff. One of these cases was afterwards complicated with metastatic orchitis, and offered a good opportunity for making use of the action of jaborandi on the parotids to combat the metastasis. The success was complete.

The case is as follows. A brigadier, a vigorous and healthy man, was attacked by mumps on March 6. His face exhibited the characteristic disfigurement; the parotid regions were swollen, puffy, and painful; there was a moderate amount of fever, with headache and want of appetite; the mouth was dry, the saliva deficient; the movements of deglutition were painful. The general condition was good, and the patient was simply submitted to the usual dietetic and hygienic measures. On the 9th, the patient suddenly complained of an acute pain in the left testicle. On inspection the gland appeared enlarged; it was hot to the touch and very painful on pressure. Emollient applications and a laxative were ordered. The next day orchitis was perfectly established; the testicle was doubled in size and very painful. The skin was hot, the pulse rapid, and at the same time the parotid regions were manifestly reduced. An infusion of jaborandi was prescribed to be taken at once. The medicine was administered at 3 A.M. At a quarter past three, first sweating and then salivation came on, the flow of saliva into the mouth giving great relief. The salivation persisted all the morning, and the next day, when the patient was seen, he said that he felt much better, and that the testicle gave him scarcely any pain. In fact, the gland had become appreciably smaller; it could be touched and pressed without bringing on any acute pain. The parotids remained in the same condition, very little swollen and almost without pain. The patient was left quiet, without any treatment. The next day every trace of orchitis had disappeared, the swelling of the parotids had also vanished, and on the day following the patient left the infirmary perfectly cured. M. Czernicki adds that he simply relates this fact without commentary. The presence of metastatic orchitis was incontestable, and no steps were taken in regard to it before the third day, when it was well-established. The patient had neither varicocele, urethritis, nor anything which might have caused a complication;

he had never had any trouble with the testicle nor underwent any traumatism. The gland had undergone an increase to nearly double its size, and in four-and-twenty hours it regained its normal condition.

PAVESI ON THE EXTERNAL APPLICATIONS OF HYDRATE OF CHLORAL.—Dr. Carlo Pavesi, in the *Annali de Chimica (Milano)* for August, 1874, remarks that chloral was discovered in Germany by Liebig; its mode of preparation has been perfected by Dumas, Roussin, and Städeler, in France, and that it was first used as a hypnotic by Liebreich, at Berlin. It is, however, in Italy that its various antiseptic antifermentative, antiputrescent, and coagulative qualities were discovered. It is likewise in Italy that it received its first successful applications at the hands of Pavesi, Ciattiglia, Merini, and Porta. At a later period, experimentalists of all countries have borne witness to its good effects both in medicine and in surgery, and even in veterinary surgery. In Italy Signor Amici used it to preserve different kinds of vegetables, potatoes and ergot of rye, and also to destroy the itch-acarus. Prato Giurkeo used it to preserve and disinfect leeches; and many others have utilised its different properties.

Dr. Pavesi states that by continuing the researches and experiences undertaken on this head in Italy, he has kept butter for eighteen months in an atmosphere charged with chloral. With the exception of a slight odour, which, however, is not disagreeable, and disappears if the butter be washed in fresh water, it was in a perfectly sound and sweet condition. Meat and fish of all kinds, preserved for three years, lost all odour and flavour of chloral on being macerated in fresh water. After this maceration, the substances which had been submitted to these experiments regained their freshness and natural colour, and furnished products which had all the qualities requisite for good alimentation. The fibrine and the albumen were both in a perfectly satisfactory state. Dr. Cogniard, in a recent thesis on the external applications of hydrate of chloral, has made a summary of the numerous works written on this question, and does full justice to the part the Italian *savans* have had in discovering the peculiar qualities of chloral already specified.

WEIR MITCHELL ON NITRITE OF AMYL IN EPILEPSY.—The *Philadelphia Medical Times* for March 6 contains a paper by Dr. Weir Mitchell, on the use of nitrite of amyl in epilepsy, and in various other forms of spasm. He states that he has made extensive trials of this remedy during the last few years, and in April, 1872, published cases illustrating its power of arresting epileptic attacks, thus anticipating Dr. Crichton Browne's able essay on the same subject, which was published in the *West Riding Asylum Reports* for 1873. Dr. Mitchell does not think that the nitrite is capable of diminishing the frequency of the fits, but he has never known it fail to arrest an attack actually threatened when there was time to use it. Unfortunately it is only available for use by the patient in those somewhat rare cases in which the fit is preceded by a distinct aura. He directs such patients always to carry with them a phial containing a few drops of the remedy, and to inhale it freely on the first occurrence of the sensation; but in other cases, those who are familiar with the premonitory symptoms can frequently check fits when the patient himself cannot. Dr. Mitchell has

used the nitrite with more or less success in various other forms of intermittent spasm, some allied to *petit mal*, and others apparently hysterical in character. He thinks that it may also be occasionally used with advantage as an aid to diagnosis. Thus it is sometimes difficult to distinguish attacks of vertigo due merely to cerebral congestion from those due to *petit mal*; but in the one case inhalation of the nitrite will aggravate, or even produce the attacks, in the other it will give relief. In conclusion, Dr. Mitchell says that he has never met with any bad effects from the use of this remedy, though nervous patients occasionally complain of the throbbing and sense of fulness in the head which it causes.

DUCKWORTH ON THE RELIEF OF TOOTHACHE BY BICARBONATE OF SODA.—Dr. Dyce Duckworth contributes a short memorandum on this subject to the *Practitioner* (April). He was called on to treat a case of very severe toothache, and tried various ordinary remedies, including chloroform and carbolic acid, without any benefit to the patient. He then remembered having read that the pain might be relieved by holding in the mouth a solution of bicarbonate of soda. He at once gave the patient half a drachm in an ounce of water, and, to his astonishment, the pain ceased immediately, and complete relief was secured. He thinks that, as the remedy is so simple and the disease so distressing and often intractable, this treatment may be worthy of notice and of imitation.

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BARNOUVIN ON THE PREPARATION OF SUPPOSITORIES.—M. Barnouvin, in the *Bulletin Général de Thérapeutique* for January 30, 1875, gives a simple and quick formula for preparing suppositories. His method is to divide the extract to be incorporated in a small quantity of lard, after having diluted it in a little water, if that be necessary, exactly as if a pomade were to be prepared; then, as the lard would have the effect of diminishing the consistence of the product, a quantity of white wax double that of the lard is added to it. The cacao butter and the wax are melted together in a porcelain capsule, after which the extract, well divided by means of the lard, is incorporated with it, by shaking it over a slow fire. The product should then be run into cardboard or paper moulds in the ordinary way. The formula for rhatany suppositories is as follows:—Extract of rhatany, 1 gramme; the smallest possible quantity of warm water; lard, 1 gramme; white wax, 2 grammes; cacao butter, 1½ gramme. This quantity is for one suppository.

DANTON ON THE PHYSIOLOGICAL ACTION OF BROMIDE OF POTASSIUM.—Dr. Danton (*Thèses de Paris*, no. 426, 1874) has based his work on M. Germain Sée's lectures and experiments. M. Sée, adopting the opinions admitted by Binz, classes bromide of potassium amongst the drugs acting on the vascular system, in the same category with ergot of rye and nicotine. M. Danton goes on to say, that bromide of potassium acts specially as a vascular medicine. It only produces any effect in the diseases held to be caused by an abnormal action of the spinal marrow or brain, by diminishing the electro-motor power and the reflex action of the nervous centres. It has that effect because it acts on the smooth fibres of the vessels, diminishes their diameter, brings on local anæmia, and in that way destroys a greater or lesser excitement result-

ing from temporary or permanent congestion. The action of bromide of potassium in epilepsy is likewise now sufficiently well proved and thoroughly demonstrated. It is, however, in cardiac affections that its best field for action is found.

RECENT PAPERS.

- On Quinine in Artificial and Spontaneous Septicæmia and in Enteric Fever. By Dr. Binz. (*Berliner Klinische Wochenschrift*, no. 8.)
- Practical Studies on Subcutaneous Injections of Morphia. By Dr. Vibert. (*Journal de Thérapie*, March 25.)
- On the Value of Tar in Bronchial Catarrh and Winter-Cough. By Dr. Sydney Ringer and Mr. Murrill. (*British Medical Journal*, March 20.)
- On the Tests for Quinine. By M. Herbelin. (*Journal de Médecine de l'Ouest*, September, 1874.)
- A Summary of the Treatment used in the Hospital of the Salpêtrière for Epilepsy. By M. Bourneville. (*Le Progrès Médical*, March 20.)
- On the Use of Iodide of Potassium on Syphilis. By Dr. Beek. (*Philadelphia Medical Times*, March 13.)
- The Therapeutic Value of the Balsam of Copaiba. By A. R. Hall. (*Practitioner*, April, 1875.)
- The Monobromide of Camphor. By Robert Lawson, M.B. (*Ibid.*)

PSYCHOLOGY.

KEMPSTER ON MICROSCOPICAL APPEARANCE OF THE BRAIN OF THE INSANE.—Dr. Walter Kempster, of the Northern Asylum for the Insane, Oshkosh, Wisconsin, presented to the Chicago Society of Physicians and Surgeons (*Medical Examiner*, June 15, 1874) some 'Notes on the Microscopical Appearances of the Brain of the Insane,' based on the examination of forty-nine cases. For a number of years Dr. Kempster has been making systematic microscopical study of the brain, and has examined the lesions of all forms of insanity, from acute mania to dementia, including puerperal and epileptic insanity. In each and all forms he has found a marked lesion—so that certain lesions may be grouped together as common to certain forms of insanity, to which lesions any particular type of insanity is palpably due. There is a wide difference between the lesions of acute and of chronic mania.

1. In certain forms of insanity, and notably in dementia, the finer capillaries show marked indications of disease. The perivascular sheath surrounding the vessel is distended; so much so, that sometimes the vessel itself appears to lie in a tunnel, its calibre being much less than the sheath, doubtless due to repeated capillary congestions of the vessels—often diseased—irregular in calibre, suggesting the idea of aneurismal dilations, but entirely distinct from the military aneurisms ably described by Charcot.

2. Next there is a degeneration, best studied in cases of dementia of syphilitic origin, and in the medulla oblongata, in the wall of the capillary, presenting dark-red patches at various points outside its walls, which gradually thicken, and appear to be due to a fatty metamorphosis or atheroma. The description by Meynert, though accurate, is by no means so complete as could be desired.

3. In 1871, while examining a section taken from the gray and white matter of the third left anterior convolution, there was found a peculiar appearance of the tissue. Situated in the white substance, but very closely to the gray matter, there were a number of small white spots, some round, some ovoid, clearly defined, in sharp contrast with the nerve-tissue, vary-

ing in size, from $\frac{1}{50}$ to $\frac{1}{200}$ of an inch in diameter. These appeared to be of a granular consistence, and much more dense in structure than the surrounding brain-substance; each was disconnected from the others, and normal white matter intervened. They did not absorb carmine, and were not connected with the capillaries. On the surface of some of the spots are fibres of connective tissue and crystals of margarine. To determine the true character of these spots and the degeneration, very elaborate and extensive microchemical manipulations were made. On allowing a section to dry, either with or without the nitric acid treatment, these spots appear to project above the surface of the section. By teasing, they may with difficulty be removed. None of these spots have been observed in the gray matter. They are most numerous in the medulla oblongata, and may be found in the white matter of the spinal cord.

4. There is another form of degeneracy, one which was found in the cases of acute mania. The spots are less in size; are far more numerous than in the other variety (3); resist carmine staining; do not possess the granular characteristic; there are no spindle-shaped fibres of connective tissue about them; they behave very differently under the microchemical tests applied to the other variety of spots. The points of resemblance are mainly in colour and apparent density. Neither of them have any investing membrane.

5. A fifth variety, as large in size as the third, possesses a dense investing membrane, which resists carmine staining and is less granular than the third and fourth. It exists in the same brain with the fourth variety. These spots or masses of the fifth variety are called 'colloid,' because of their resemblance to such growth, and are found in the medulla oblongata and pons Varolii. The last three varieties of degenerated masses, or spots, have one feature in common, a well-defined edge, a clean-cut margin, easily made out.

6. A sixth variety, common in cases of dementia, and where the atheromatous capillary is found, is one in which the mass passes insensibly into the surrounding normal tissue. This form is larger and less distinct than the others. It more nearly resembles normal brain-tissue. Sometimes these masses are lobulated. They are granular and dense, less numerous than in the other varieties, and do not appear in clusters. They appear to destroy or transform the tissues, and if surrounding a capillary, destroy its walls. A point of resemblance in common with the third variety is, that connective tissue fibre appears in both.

The condition of the cellular structures of the brain, of the nerve-fibres and so-called lymph-spaces, are all fields rich in results not here spoken of.

BINET ON IDIOCY AND CONSANGUINITY.—Dr. Maurice Binet asks (*Annales Médico-Psychologiques* Nov., 1874) whether consanguinity is in itself a cause of degeneration, even when the parents have all the qualities necessary for the production of healthy children, and whether the disastrous effects attributed to it are only found when the parents' health is defective. These questions are not yet solved, and for this reason he relates the history of a family in the town of Ch... (Nièvre). The father and mother are both intelligent and healthy, yet they have three idiot children. Inquiring into the family history, he found that the grandmothers of the parents were sisters married to men in no way related to them or

each other. One of these had two sons and five daughters, the other two sons and two daughters. One of the sons of the younger sister married one of the daughters of the elder; the other son married a woman not related. The father and mother of the idiots are the children of these two brothers, so that on the side of the father there are two marriages of relations, and one on that of the mother. It is said that, previously to the idiotic generation, no hereditary defect had been noticed in these families, such as epilepsy, insanity, idiocy, or scrofula; that their ancestors, both direct and collateral, were all possessed of a good constitution and intelligence; that they lived chiefly in the country, and attained an average duration of life. The father of the idiots is an only son; the mother has brothers and sisters married. Their children show no signs of idiocy. The father was, when married, twenty-six years of age, the mother, thirty. They were sober and industrious people, who made a living as hawkers. The eldest child, a boy, was born twenty-seven months after marriage, the labour being speedy and natural. The child was nursed by its mother, and was at first healthy, but when five weeks old, was attacked by vomiting and strabismus, and this occurred at intervals till his death; development was arrested, there was great weakness of the muscular system, and intelligence was absent. The child never laughed, never recognised persons, even its mother, nor cried except when in pain. It died at the age of twenty months. The second was a girl, born twenty-six months after the first. The labour was equally favourable; the child was put to a healthy wet nurse, but at five weeks old she suffered from similar vomiting and strabismus with obstinate constipation, and at the age of a year arrest of development took place chiefly in the lower limbs, which were unable to support the body. She is now two years old; intelligence is wanting and also sensibility. She hardly withdraws a limb when it is strongly pinched, and manifests no pain, and utters no cry. She is not conscious of anything cold placed on the skin. Her mother does not think her deaf, but she makes no response when spoken to. She shows no signs of intelligence, does not recognise her wet-nurse or mother; does not attempt to speak; does not attempt to take what is presented to her, and lets fall the objects which are placed in her hand. The third, a daughter, was born under similar conditions, and was nursed by the mother. At five weeks the same vomiting, constipation, and squinting appeared; and this child followed in every respect the course of the other, and has no greater intelligence. Dr. Binet thinks these facts prove conclusively that consanguinity is in itself a cause of degeneration. G. FIELDING BLANDFORD, M.D.

RECENT PAPERS.

- On Mental and Nervous Diseases. By M. B. Ball. (*Gazette des Hôpitaux*, March 9.)
 Investigations into Alcoholic Epilepsy. By Dr. Drouet. (*Annales Médico-Psychologiques*, March, 1875.)
 The Morbid Psychology of Criminals. By David Nicolson, M.B. (*Journal of Mental Sciences*, April, 1875.)
 On the Family Care of the Insane in Scotland. By Professor F. Jolly, of Strasburg. (*Ibid.*)

DR. EDWARD HITZIG, of Berlin, who is well-known for his researches on the functions of the brain, has been elected to the chair of psychology in the University of Zürich.

OPHTHALMOLOGY AND OTOLOGY.

SAMELSOHN ON AMAUROSIS AS THE RESULT OF SUDDEN CESSATION OF MENSTRUATION.—The scepticism of modern ophthalmology has thrown considerable doubt upon the many instances of amaurosis which were reported in days when the use of the ophthalmoscope was unknown, as having occurred in consequence of the sudden cessation or the suppression of some natural discharge or the disappearance of some unnatural eruption. Amongst later writers, Zehender has written as having great doubts on this point, while Von Gräfe has expressed his belief that in all other and similar cases the ophthalmoscope would have demonstrated the existence of optic neuritis. Under these circumstances the present case, which is recorded by Samelsohn (*Berliner Klinische Wochenschrift*, January 18, 1875), is of interest, inasmuch as it was marked by none of the intraocular changes which would result from any such kind of inflammation as Von Gräfe suggests.

Gertrude P., a healthy young woman, aged twenty-one, was employed, during the time of her menstruation, at some kind of out-door work which necessitated her standing barefooted in cold water. On July 30 her menstruation suddenly ceased without any pain, except that the same evening she felt a sensation of throbbing, and of pressure in the orbits; she was able to do her work the next day, but towards evening her sight was impaired, and she had difficulty in finding her way about; on the following day after some trouble she reached her village home, and applied to the village doctor, who recommended some lotion containing nitrate of silver. Soon after this she was seized with severe pain, and by the morning of August 5 she had entirely lost her sight; a lotion of belladonna was now ordered, and then she applied to Dr. Samelsohn, who examined her eyes on August 7, and found their condition as follows.

In both eyes sight was absolutely wanting; a very bright light of a lamp could not be perceived by either eye, and no phosphorence could be produced by pressure. The pupils were widely dilated and fixed; the media were clear, and in both eyes the optic disc was well defined and of a natural tint; the retina around the termination of the nerve, however, was grey and wanting in transparency, elsewhere it was apparently quite unaltered. The blood-vessels were unchanged, except that, perhaps, the veins were rather overfull. The intraocular tension was normal. The girl's general condition was good; there was no evidence of any other disease about her whatever, and, except that she was blind, her only complaint was of a dull and deep-seated pain behind the eyes. With regard to the nature and the seat of the cause of blindness, Dr. Samelsohn was strongly of opinion that, in consequence of the menstruation having abruptly ceased, vicarious hæmorrhage had occurred somewhere in the neighbourhood of the termination of the optic nerves, and not in or near the nervous centres, and that the amaurosis was the result of mechanical pressure. The prognosis was naturally grave and unsatisfactory. The treatment consisted in the use of hot footbaths with mustard cataplasms to the ankles, and the internal administration of tartar emetic. Heurteloup's leech

was applied to the left temple also. On the following day the right eye had recovered bare perception of light in the centre of the field of vision, but the left eye remained absolutely blind. The treatment was steadily continued for some days, and was rewarded by a gradual restoration of sight in both eyes, so much so that, by August 16, just ten days after its commencement, her condition was as follows. With the right eye she could read no. 1 type, and with the left eye no. 3 type; the right pupil was smaller than the left, but the ophthalmoscope could detect no structural change whatever. The patient now returned to her home, and was only seen once in the week; at the period when menstruation should again have occurred, she had severe pain in her breasts, which was relieved by appropriate treatment; menstruation recurred at proper intervals and was not again disturbed. The vision of the left eye became as completely restored as that of the right; and as the ophthalmoscope could still detect no change in the fundus, it seemed reasonable to suppose that the grey aspect and the slightly striated appearance of the retina around the optic discs were physiological peculiarities.

[On a careful review of all the circumstances attending this rather mysterious case, it is hard to believe that any inflammatory process was concerned in it, and the evidence is strongly in favour of the occurrence of hæmorrhage, and this too in the orbits rather than within the skull; on any other supposition the nature of the case can hardly be explained, although from any point of view Dr. Samelsohn has done well to place so interesting an occurrence upon record.—*Rep.*]

GUYE ON THE INFLUENCE OF COLD AND SEA-BATHS ON THE ORGAN OF HEARING.—The direct effect of cold is best observed in cases in which cold water has run into the ear during a bath, and in consequence of which an acute inflammation is excited. At the last meeting of the Association of Naturalists and Physicians, Dr. Guye, of Amsterdam, mentioned two cases illustrating this point, both of which recovered after paracentesis of the membrana tympani and other subsequent treatment. The *Allgemeine Wiener Med. Zeitung*, January 19, 1875, gives an abstract of Dr. Guye's remarks. The injurious effects of cold are also observed when the patient has attacks of giddiness in consequence of cold injections into the ears; if warmer water be then substituted, there will be no return of the attacks. The opinions of aurists relative to sea-baths are very diverse. A few consider them injurious, and others useful. Dr. Guye believes that he has solved this question, and lays down the rule for the diagnosis of the cases in which sea-baths are indicated, from those in which they must be looked upon as injurious. In one class of cases he has found sea-baths not only void of danger, but of the greatest utility; in another series, they have either aggravated the existing aural complaint or have occasioned the first symptoms of a new one. He considers the difference to lie in the fact that the attacks of dizziness which indicate labyrinthal disturbances are always absent in the former class, while, on the contrary, they are certainly present in the latter. Dr. Guye thinks, therefore, that such cases in which symptoms of disease in the labyrinth are already present, or in which there may be a predisposition to them (especially if it be a hereditary predisposition) contraindicates the employment of sea-baths; but that in all other cases

(the necessary precautions being of course taken) they may be resorted to without danger.

BOWATER J. VERNON.

KNAPP AND OTHERS ON OPHTHALMIC TUMOURS. In vol. iv. no. 1 of the *Archives of Ophthalmology and Otology*, Messrs. Knapp, Turnbull, Thompson, and Williams report several cases of ophthalmic tumours which are in some respects worthy of note.

In one case of glioma of the retina, occurring in a girl three years of age, there were numerous 'metastatic' tumours found on the cranium directly over the sutures, and others on the inferior maxilla and neck. These swellings are described as 'subcutaneous, immovable, and sharply defined intumescences.' About two months after the eye was extirpated, the child suffered from a succession of tetanic convulsions, which was attended with a shrinking of the larger tumours, disappearance of the smaller cranial ones, and an improvement of the child's health for several days. The child died some days afterwards, seemingly of exhaustion, and a *post mortem* examination revealed the sutures of the skull as raised, and marked by red lines, which, after incision of the pericranium, proved to be areolar tissue saturated with blood. On the outer surface of the skull round tumours were observed, which showed connection both with the pericranium and bone, the surface of the latter being rough and corroded. 'The substance of these tumours was finely granular, with some very red and soft fibrous stripes.' The skull was of ordinary thickness, its inner surface showing numerous small depressions, surrounded by a wall of very vascular osteophytic excrescences; and corresponding to these depressions were soft red tumours, situated on the outer surface of the dura mater. The microscopic examination in all the tumours gave the gliomatous or encephaloid cancerous structure. In commenting on this case, the reporter points out that it differs from the few cases of glioma metastases on record, in that the metastatic tumours originated between the periosteum and the surface of the bone, and not in the diploë, and that here in some places intracranial tumours corresponded to extracranial ones, the diploë between them being but little changed.

In another case of glioma, the family predisposition to this affection was remarkable. The right eye was the one affected in the patient, a girl aged twelve months. The history of the family shows that a brother of this child had been 'similarly diseased' at two years of age, and died eleven months after the affection had been first observed. A cousin of the patient on the father's side was attacked in the left eye in his second year, and died a few months after it was first noticed. The father's aunt lost two children between two and four years old, whose eyes were said to be diseased in exactly the same manner. 'In no case has any relative had any cancerous disease in any other organ or tissue, to their knowledge.' On examination of the eye after enucleation, the smallest tumours showed with the greatest distinctness that the pseudoplasm originated in the inner granular layer.

In a case of melano-sarcoma, the microscopic examination of which was made by Professor Knapp, a new feature of propagation of intraocular sarcoma is mentioned, viz., 'the occurrence of secondary tumours by dissemination of germs from a remote tissue,' in the same way that glioma of the retina extends to the choroid.

Another case of intraocular melano-sarcoma occurred in a tuberculous girl, twelve years of age. During the early development of the growth, which originated in the vicinity of the optic disc, and extended by propagation, there was no pain, nor did pain occur till eighteen months after it was accidentally discovered that the eye was blind.

SCHOEN ON PERCEPTION OF COLOUR.—In the *Berliner Klinische Wochenschrift* for July 20, 1874, Dr. Wilhelm Schoen, of Leipzig, gives the following as the result he has obtained from his investigations on colour-blindness. Should a peripheral nerve-fibre have its perception of light lowered to a quantity x , its neighbouring bulb still reacts to an influence from green, but should the perception sink to x and y , green will no longer be perceived. Should the perception be further lowered to x , y , and z , the perception of red also ceases; that is, the excitability is so much lowered, that no waves of red light can cause irritation of the elements which perceive red; while, should a further degeneration take place, the perception of blue is also lost. In other words, an irritation of slight intensity suffices to call forth the perception of blue, a stronger is required for red, and it is necessary to have a yet stronger for green. He says he has often observed that a patient with atrophy of the optic nerve appears blind for a certain colour till the light has been increased, and that a small coloured square was not recognised, while a square of larger surface of the same colour was rightly determined. The disturbances of colour caused by the administration of santonin are, he thinks, explained by the increased circulation and the accordingly increased change of tissue, an increased hyperæmia of the retina, the arteries and veins of which are both enlarged in calibre, being visible by the ophthalmoscope. This explanation suffices also for the symptoms of delirium and hallucinations which are seen after the administration of santonin in full doses. Dr. Schoen believes that santonin has in his hands been of much benefit in cases of amblyopia, arising from the excessive use of tobacco or intoxicating liquors, and in the commencement of atrophy from exhausting discharges; while in amblyopias with increased fulness of the vessels, especially of those in the neighbourhood of the macula lutea, nothing is to be hoped for from its use. He gives from three to seven grains of the santonate of soda as a dose, which generally causes a moderate yellow colour to be present. Large doses of the preparation cause paralysis of the retina.

KÖPPE ON REFLEX MENTAL AFFECTIONS AFTER EAR-DISEASES.—Professor Köppe relates, in the *Archiv für Ohrenheilkunde* for the 8th ultimo, two cases of mental affection after disease of the ear, which have come before him at the asylum at Halle, of which he is director. Quoting Hitzig's statement that any considerable injuries to the nervous system, whether they have a central or a peripheral seat, can bring the whole system into sympathy, he thinks that the lesion of certain regions can more easily cause central functional derangements than the lesion of others, and finds that in the cases collected by himself injuries to the region of distribution of the sensory branches of the fifth nerve are more important than injuries to any other region. The two cases referred to are brought forward in support of this statement.

In his concluding remarks, he mentions that the

form of the auricle depends greatly upon the cranial development, and says that he has repeatedly found peculiar forms of cranium and auricle combined in blood-relations who have suffered from mental and aural disease. He believes with Tröltzsch, that family dispositions to ear-affections are grounded upon similarities in the formation of the bony ear, and that these, again, are referable to similarities in the form of cranium.

The treatment of the ear-affections alone was, in both cases, followed by the complete removal of the mental affections, on account of which they had been placed under Professor Köppe's care.

W. LAIDLAW PURVES.

BARBER ON IODOFORM IN GRANULAR LIDS.—Dr. Barber, who practises in Saginaw City, Michigan, communicates his experience of treating granular lids with iodoform to the *Detroit Review of Medicine*. in the amusingly free and easy manner peculiar to our Transatlantic brethren. He writes as follows to the editors.

'Without going into any "profound analysis of the subject," allow me to tell you what I know of treating granular sore eyes with iodoform. Some time ago I had a patient who had suffered much from many physicians (myself included.) He was a sneaking, sniveling son of a gun, and would come sidling into the office with a drooping, mournful expression in his large, sore eyes that was truly aggravating. Months passed by, and still my sore-eyed friend haunted my office with such punctuality and pertinacity that I resolved to cure those eyes or die. I brushed them with all the remedies known to modern oculistic surgery, and floated his intestinal apparatus in a sea of tonics and alteratives; and when all these things had failed, I used to take him around to medical societies as a sort of permanent clinique, and then to my office and try the suggestions; but the patient grew worse gradually, and so did I. Finally, in a medical journal I saw an account of the successful treatment of an intractable ulcer of the leg with iodoform, and the idea suggested itself that it might be "good for sore eyes," and I had twenty grains put in an ounce of glycerine, and applied some to the inner surface of the lids, and in came the patient next day, with a sweet smile and a whitening cornea, and I felt "as if my life's work was ended"—that I could "step down and out." The patient got well without a drawback in a short time, and I have tried the remedy in quite a number of cases since with very gratifying results.'

RECENT PAPERS.

- Staphylocoma consecutive on a Purulent Blennorrhagic Ophthalmia. By M. Gosselin. (*Gazette des Hôpitaux*, February 9.)
 On Iridectomy. By Dr. C. Abadie. (*Bulletin Général de Thérapeutique*, February 15.)
 The Simulation of Diseases of the Eye, and the Difficulties of Treating Diseases of the Eye in Soldiers. By Dr. Kalliwoda. (*Der Feldarzt*, nos. 1, 3, and 4.)
 The Simulation of Diseases of the Ear. By Dr. A. Perres. (*Der Feldarzt*, nos. 1, 3, and 4.)
 On the Semeiological Value of Hemiopia in Cerebral Affections. By Dr. Abadie. (*Le Progrès Médical*, February 27, 1875.)
 On Scleritis Syphilitica: its Pathology, Course, and Treatment. By Fred R. Sturges, M.D. (*Archives of Dermatology*, January.)
 The Significance of 'Congestion Papilla' in Intracranial Disease. By H. R. Swanzy, M.B. (*Dublin Journal of Medical Science*, March 1, 1875.)

Myringomycosis Aspergillina and Otitis Parasitica. By Dr. Cassells. (*Glasgow Medical Journal*, January, 1875.)
 Ophthalmoscopic Phenomena considered as Signs of Death. By Dr. J. Gayat. (*Annales d'Oculistique*.)
 Elucidation of some Points in Aural Surgery. By Dr. Chisholm. (*Philadelphia Medical and Surgical Reporter*, March 6.)
 Menière's Disease, and Vertigo in Diseases of the Ear. By Dr. Ladreit de Lacharrière. (*Annales de l'Oreille et du Larynx*, March 1, 1875.)
 Case of Parasitic Otitis. By Dr. Levi. (*Annales de l'Oreille et du Larynx*, March 1, 1875.)
 The Treatment of Gonorrhoeal Conjunctivitis. By J. Hirschberg. (*Berliner Klinische Wochenschrift*, March 15 and 22.)

TOXICOLOGY.

SCHUMACHER AND SPANGLER ON A CASE OF POISONING BY NITRO-BENZOL [ESSENCE OF MIRBANE].—The subjoined case is detailed at considerable length in no. 12, of the *Wiener Medizinische Wochenschrift* for 1875. Seven weeks before the accident, the ingredients for a liqueur were purchased by the sister of the deceased. The receipt was nearly as follows: 18 pints of water, 5 pints of rectified spirit, 8*d.* worth of syrup, 1*d.* worth of colouring, 8*d.* worth of essence of almonds; some sugar and peppermints were added; and the whole digested fourteen days. Two or three people had taken some of it, and did not like it. On January 13, the remainder was poured into a jar, about three tablespoonfuls being left behind in the original flask. A little brother of the maker, aged seven, who had several times drank as much as three wineglassfuls of the liqueur, came from school about 2.15, and begged for this remainder. His sister poured it into a glass; he drank it, ate some bread and butter, drank some butter-milk, went off to slide, and returned at quarter to 5 P.M. He soon vomited, and lay down on a settle; only two little sisters being then at home. The vomit smelt strongly of bitter almonds. The elder sister returning, found him with a fixed stare, groaning, and speechless (he never spoke again). She fetched a midwife, who gave him new milk, and applied cold to his temples. A surgeon saw him, and is said to have given an emetic, and some medicine, taken home by a brother in the evening. The medicine had no effect, and he died at 12.30 (midnight). The remainder of the liqueur was thrown away. However, the policeman took with him the little bottle which had contained the 'almond-essence.' There was no suspicion of any other poison being taken. Neither this child nor the others had suffered from the previous draughts. It was noticed that the last of the liqueur was thicker than before, and it was never shaken before being poured out. On the 16th, at the *post mortem* examination, the pupils were found dilated: there was moderate cadaveric rigidity. There were numerous bright red spots on the posterior parts of the body (hypostases). The smell of bitter almonds was very evident on opening the skull, also in the blood in the heart, and in the contents of the stomach and intestines. There was general congestion of nearly all the organs of the body; also punctiform ecchymoses in the brain, pleuræ, lungs, mucous membrane of stomach and intestines, etc. The right heart was full of dark thin venous blood; there was a large fibrinous concretion in the left ventricle. The lungs were rosy red, with darker ecchymoses. There were no other special appearances.

As only a drop or so of the essence was left, it was necessary to find tests to distinguish true essence of almonds (*Bitter-Mandel Oel-Ether*) from the spurious, or nitro-benzol. The following were found on trial. 1. True essence of bitter almonds, containing hydrocyanic acid, easily dissolves in 200 parts of water. 2. One half of this solution, treated with alcohol and ammonio-nitrate of silver, gives a precipitate of cyanide of silver on adding nitric acid. 3. Caustic soda when added to the other half, with a salt of iron, gives Prussian blue on the addition of hydrochloric acid. 4. Genuine natural ethereal (or essential) oil of bitter almonds treated with hydrochloric acid, dilute sulphuric acid, alcohol, ether, and zinc is deoxidised, and hydrogen is generated. The product of this on neutralising the acids with caustic soda, and shaking with ether, gives, on drying in a water-bath, a thick yellow fluid residuum, which does not change colour with solution of chlorinated lime. 5. The genuine essence mixed with alcohol placed in a dry saucer, on the addition of a bit of bright fresh dry metallic sodium, bubbles at first, with a pale yellow froth, which finally turns a bright red. On the other hand, genuine nitro-benzol is (1) almost insoluble in water, only slightly soluble in alcohol, gives no reaction with tests (2) and (3), but in (4), chlorinated lime gives an intense bluish-violet coloration (due to development of anilin); with (5) there is a dark-brown foam. The application of these tests to these remains of the essence, and of the liquid drank, showed conclusively that they consisted of pure nitro-benzol—a deadly poison. The authors remark that the suddenly fatal course of the symptoms, the thinning and dark coloration of the blood [rapidly changing to a brighter hue on exposure to air], and the *post mortem* appearances, point to decomposition of the blood by the poison. That this was really the cause of death is evident from the inspection, as there were no signs of any previous disease, and he is known to have been in good health previously. It is not known what is the smallest fatal dose. The boy probably took nearly all that was purchased. Only a few drops remained in the half-ounce phial which originally held the spurious essence of almonds. [There is reason to fear that nitro-benzol, or essence of mirbane, is often sold in England for essence of almonds. The following are additional points of distinction. The genuine essential oil of almonds has a specific gravity of 1.064, whilst it boils at 179.5° Cent.; it is soluble in thirty parts of cold water, and in almost all proportions in alcohol and ether. Nitro-benzol, or the spurious essence, has a specific gravity of 1.209; its boiling-point is about 220° Cent. Besides the tests mentioned above, other reducing agents, as sulphide of ammonium, zinc and hydrochloric acid, iron filings and acetic acid, etc., will develop aniline, which colours solution of chlorinated lime an intense violet-blue. Chromate of potash and sulphuric acid also colour it blue.—*Rep.*]

W. BATHURST WOODMAN, M.D.

JÄDERHOLM ON THE MEDICO-LEGAL DIAGNOSIS OF POISONING BY CARBONIC OXIDE.—Jäderholm (*Nordiskt Medicinskt Arkiv*, vol. vi. nos. 11 and 21) says that the most certain means for detecting this form of poisoning will always be the actual demonstration of the poisonous gas in the blood. To this end, three methods have been proposed, viz.: (1) The spectroscopic examination of the blood; (2) the reaction with caustic soda; and (3) 'aspiration,'

with the reaction by chloride of palladium (Eulenburg).

To test these methods, and especially to determine how long after death they are still applicable, the author killed several small dogs and rabbits by carbonic oxide, either pure or in the form of coal-gas, and examined the bodies either immediately or at various intervals (up to one or more months) after death; the blood being in some cases exposed to the air, in others contained in closed vessels, and either pure or mixed with solution of borax, which has no effect on the spectroscopic characters. When secluded from the air, the blood showed the spectroscopic reaction due to carbonic oxide, even four or five months after death; but, if it be exposed to the air, the gas soon escapes.

With regard to the spectroscopic results, the author notices the following points. The absorption-band of reduced hæmoglobin does not occur precisely between the two bands of oxyhæmoglobin, since the absorption of hæmoglobin extends further towards the red after reduction than before; which is important when the reduction is (as it always is in this case) partial. The author prefers, as a reducing agent, the alkaline solution of ferrous tartrate used by Stokes. He has attempted to ascertain the precise position of the absorption-bands, and finds that the middle of the band α in ordinary blood corresponds to a wave-length of 5730, the middle of β to 5370. In blood affected by carbonic oxide, the middle wave-length of α is 5690, and of β 5340.

The reaction of blood with caustic soda, proposed by Hoppe-Seyler, is also valuable. Ordinary blood, shaken up with this reagent, gives a brownish-green precipitate, and carbonic oxide-blood a red compound; but both pass, after a time, into red solutions, similar in appearance, but giving different spectroscopic reactions. In the red solution thus obtained from normal blood, hæmoglobin is transformed into reduced hæmatin (of Stokes), while in the carbonic blood the colour is due to the presence of a combination of carbonic acid with hæmatin or carbonic oxide hæmatin, the existence of which has been already pointed out by Popoff, though reduced hæmatin is also present. The spectrum of this solution is accordingly compounded of the spectrum of reduced hæmatin and that of carbonic oxide hæmatin. The spectrum of carbonic oxide hæmatin itself resembles that of oxygenated or carbonic oxide blood; but the two absorption-bands are paler and nearly equal in strength. The red liquid called by Hoppe-Seyler 'hæmochromogene,' prepared by adding (without access of air) caustic soda to a solution of hæmoglobin already reduced by hydrogen, may be shown, the author says, to be nothing but Stokes's reduced hæmatin in alkaline solution.

Jäderholm cannot confirm the statement of Eulenburg and Vohl, that ferricyanide of potassium is a specific re-agent for carbonic oxide blood; nor has he obtained satisfactory results from Eulenburg's method of aspiration.

J. F. PAYNE, M.B.

RECENT PAPERS.

On one Cause of Error in Medico-Legal Researches for Alkaloids. By MM. Ritter and Schlagdenhaufen. (*Revue Médicale de l'Est*, December 15, 1874.)

Poisoning in Men and Animals by Decoction of Lupin-Seeds. By Dr. Bellini. (*Lo Sperimentale*, March, 1875.)

REVIEWS.

Die Carbolsäure in der Medicin. Von C. G. ROTHE, Altenburg, p. 63. Berlin: A. Hirschwald, 1875.

[*Carbolic Acid in Medicine.* By C. G. ROTHE, of Altenburg. Berlin: Hirschwald, 1875.]

This is a reprint of a paper read at a medical society. The introduction is eminently German. The author begins by denouncing all 'mysteries,' and all believers in 'shock' or 'dynamic potencies,' as either homœopaths, 'ladies of one or other sex,' or country clergymen. He then very candidly, though inconsistently, admits that the real action of carbolic acid, in fatal doses, is as great a mystery ['selbst ist so wenig aufgeklärt'] as that of strychnine, hydrocyanic acid, or morphia. He holds, however, that carbolic acid has, in proportion to the dose, a killing or destructive effect upon all kinds of life, animal and vegetable—or, to use his own words, it is 'ein Gift für alle Organismen.' The word 'organisms' appears, like Mesopotamia to Mr. Whitfield's convert, to have a very soothing effect upon Dr. Rothe's mind, as he repeats it frequently, evidently with much mental satisfaction. There is little, if any, novelty in the pamphlet; but it is a fair *résumé* of the surgical and medical applications of this acid. French and English authorities scarcely get their fair share of quotation or credit; for example, Dr. Sansom's 'antiseptic system' appears to have been very freely made use of, whilst his name is quoted only casually, as if he had merely used the sulpho-carbolates once or so. After some description of carbolic acid, its physical and chemical properties, etc., the surgical applications are described, its use in 'Lister's' method for operations, wounds, frost-bites, burns, ulcers, carbuncles, etc., and as a vesicating agent; the author then begins at p. 18 to treat of its uses in medicine. He commends its use in the form of inhalations in phthisis, and gives the following formula: R. Carbolic acid in crystals, and spirits of wine, of each two parts; tincture of iodine, one part; distilled water, ten parts. Mix. Twenty-five to thirty drops to be added to one or two tablespoonfuls of water, for inhalation. He uses the same solution for diphtheria, to paint the tonsils, pharynx, etc. An Italian chemist, Enrico Savoli ['L'Idro-Alcoolato de Ioduro di Fenile, ovvero Micela antidifteritica,' etc. Milano, 1872] reports the signal success of this treatment in an epidemic in Milan. Dr. Rothe recommends it also in catarrhal angina, and catarrhal affections of the loci; also in hooping-cough, combined with belladonna and syrup of poppies; in diarrhœa, dysentery, and summer cholera. He speaks doubtfully of the success in zymotic diseases (scarlatina, typhoid fever, etc.), syphilis, and even cutaneous parasitic diseases; more hopefully of its employment in certain cases of diabetes mellitus, of which little need be said, as Ebstein and Müller's trials of this remedy have been pretty fully reported in our pages. The author concludes with the following peroration. 'The tendency of the medicine of today is to go straight to the root of every disease. And if the progress of discovery succeeds—as Dr. C. Stropp (in his 'Vaccination and Micrococci,' Berlin, 1874) confidently predicts, and the genial researches of Hallier are showing us the road already—in finding out a specific fungus for every

infectious disease, hygiene and therapeutics will not be backward in laying a solid "mechanical" basis by the further development of antiparasitic methods of treatment !'

W. BATHURST WOODMAN, M.D.

On the Force used in Transfusion, and on the Selection of Fluids for Injecting into the Veins. By W. W. WAGSTAFFE, F.R.C.S., Assistant-Surgeon to St. Thomas's Hospital.

This is a reprint of a paper which appeared in the *Obstetrical Journal* for December, 1874. It may fairly be considered a practical contribution to the subject of transfusion. The details of two cases are given. In one the transfused fluid was milk, and in the other milk with an equal quantity of defibrinated blood. In the latter the patient was too far gone from the combined effects of shock and hæmorrhage to be benefited by the operation—there was no response to the transfusion. In the former, the patient had had both legs amputated and had lost a good deal of blood. A pint and a-half of milk (made from the condensed form) was transfused. The immediate effect was to rally the patient and raise the temperature two to three degrees; but shortly afterwards she began to sink, and died a few hours after the transfusion. Both cases, therefore, terminated fatally. Milk as a substitute for blood in transfusion has still to be put on its trial. The idea is not new. On the contrary, it has been often suggested, and cases have been mentioned from time to time in the American papers—not, however, with sufficient detail as to the immediate and remote effects to make them of much value. As the plan must still be considered an experimental one, perhaps it would be better that the experiments should first be made on some of the lower animals—such as cats or dogs. This is one of the points which is engaging the attention of the Committee on Transfusion appointed by the Obstetrical Society, and will, no doubt, be tested by experiment. It would certainly be a great advantage to be able to use such a readily obtainable fluid as milk in transfusion; but it must be remembered that the blood in the veins is a very complex vital fluid, and it takes very little to damage its integrity. It is, however, a fact worth remembering, that Mr. Wagstaffe's patient lived six hours after having had a pint and a-half of milk injected into her veins, and that death was probably caused by the double shock of the injury and the amputations. The instrument used by Mr. Wagstaffe seems to have been effective in his hands. It is really a return to the old plan, modified and improved, introduced by Dr. Hamilton, of Ayr. This plan was simply a funnel with about two feet of tubing attached to it, the weight of the blood being supposed to be sufficient to force it into the vein. Most experimenters, however, have found this force, the force of gravitation, insufficient, and hence a great variety of instruments have been invented to overcome the difficulty.

Mr. Wagstaffe's experience in this respect differs from that of many others, for he was able to inject without difficulty a large quantity (possibly too large) of milk. He also claims for his instrument (of which a drawing is given) that it admits of a suction-power in the vein by which the blood, or whatever fluid is used, is drawn or received into the system in a more natural and safe manner than when force of any kind is employed. HENRY M. MADGE, M.D.

Tables of Materia Medica.

This small pamphlet will certainly be a welcome and useful book to students and practitioners, for it comprises the contents, doses, proportion of active ingredients and methods of making the various pharmacopœial preparations, arranged in a tabular form and grouped together in such a way as greatly to aid the memory. The preparation of an alkaloid, for example, is divided into its chief stages, and under these headings are arranged the processes necessary in each, so that the student may easily see their use. The extracts, powders, pills, tinctures, etc., are grouped according to their doses, so that, instead of having to get up the dose of each separately, most of them can be remembered as belonging to a particular group. This useful little work is printed by Walter Hawkins, 3 Albert Terrace, Bishop's Road, W. It does not bear a publisher's name, but may, it is said, be obtained at the various hospitals. T. LAUDER BRUNTON, M.D.

MISCELLANY.

THE fourth session of the German Surgical Association was held last week in Berlin, under the presidency of Professor von Langenbeck.

MR. A. H. GARROD, of King's College, Cambridge, has been appointed Fullerian Professor of Physiology to the Royal Institution for the next three years.

A NEW MEANS OF IDENTIFICATION.—Mr. W. B. Woodbury recommends that for purposes of identification (of criminals, for example) it is only necessary to get a distinct photograph of the palm of one hand, taken in a strong oblique light, so as to bring out the markings strongly. This will be found a map, he says, never alike in two persons; no disguise short of actual disfigurement can do away with the difference.

THE Clothworkers' Company have founded in King's College, London, one annual exhibition of 25*l.* for two years for proficiency in science, open not only to actual students of the college, but to all under nineteen years of age who are intending to devote themselves to the study of mathematics, mechanics, physics, chemistry, botany, and zoology. Each candidate may select any four of these subjects.

TOBACCO SMOKE.—Dr. Otto Krause, of Annaberg, has been making researches into the composition of tobacco smoke, which are published in *Dingler's Polytech. Journal*. He finds that tobacco smoke contains constantly a considerable quantity of carbonic oxide. The after effects of smoking are said to be principally caused by this gas, as the smoker never can prevent a part of the smoke from descending to the lungs, and thus the poisoning is unavoidable. The author is of opinion that the after-effects are all the more energetic the more inexperienced the smoker is; and he thus explains the unpleasant results of the first attempts at smoking, which are generally ascribed to nicotine alone.

THE EFFECT OF EMOTION.—It is related by Kurt Sprengel (*Geschichte der Arzneikunde*, vol. ii. p. 371) that the Arabian physicians sometimes relied with great success on moral means, of which the following is a striking instance. One of Haroun Al-Raschid's wives suffered from paralysis of both arms. Dschibrail, the court physician, induced the caliph to summon all the leading nobles to a large hall in his palace, and then introduced the lady to the assembled multitude. Without a word of preface he raised her veil, when feelings of shame and fear restored strength to the palsied arms. The lady hastily drew her veil down again, and was cured from that hour.

TELEGRAPH CLERKS' CRAMP.—With regard to this new form of disease, which was reported by M. Onimus to the French Society of Biology, it may be noted that it only occurred in cases where the Morse instrument was used. M. Onimus remarked that, should other *employés* be attacked with this unpleasant product of modern civilisation, it would be advisable to introduce the use of Hughes's instrument.

HOW TO SAVE TROUBLE.—Dr. John C. Peters, in his address on 'Sects in Medicine,' delivered before the New York Medico-Legal Society, says: 'The Tartar physicians, or Llama doctors, have long superseded infinitesimal doses, as, if they do not happen to have any medicine with them, they are by no means disconcerted, for they merely write the name of the remedy they wish to give on a little scrap of paper, moisten this with the saliva, roll it up into a pill, which the patient tosses down his throat with the same perfect confidence as he would aloes, assafoetida, or any other remedy. To swallow the name of the remedy, or to take the medicine itself, say the Tartar physicians, by any patient, comes to precisely the same thing. If paper is not at hand, the name of the drug is written with clay or chalk upon a board, which is then washed off, and the patient swallows the liquid.'

MEDICAL EDUCATION IN SWEDEN.—Stockholm possesses a fine school of medicine, with a remarkably well-arranged museum of pathological anatomy, and a fine anthropological museum. Besides this school at Stockholm, there are two faculties of medicine, which form part of the universities of Upsala and Lund; the first founded in 1477, the second in 1688. Instruction in these faculties is absolutely free and gratuitous. The student may attend all the courses he wishes, without paying any fees, always provided that he has passed a satisfactory examination on leaving one of the upper elementary Swedish schools. The faculty examinations give in succession the titles of candidate, licentiate, and doctor. A recent law allows women to apply for the doctor's degree. The professors are divided into three categories—the professors properly so styled, the assistant-professors, and the *agregés*. The professors at class receive 4,500 rixdollars, or about 800*l.*, a year, and the assistant-professors about 400*l.*, and the *agregés* do not receive any remuneration. In 1873, there were 168 professors of all grades, in the Swedish universities, and 2,080 students. Upsala possesses 250 scholarships, and Lund 200; each scholarship being worth from 20*l.* to 50*l.* per annum. Finally, some prizes of 20*l.* and upwards are distributed at the examinations for travels for scientific purposes. The expenses of the universities are partly covered by the revenues of their large domains, partly by the state. In 1870, the state contributed 1,758,587 rixdollars to Upsala, and 1,037,232 rixdollars to Lund.

INTERNATIONAL MEDICAL CONGRESS AT BRUSSELS, 1875.—The fourth session of the periodical International Congress of Medical Science will commence at Brussels on September 19, 1875, and will last a week. It will be composed of those native and foreign medical men who send in their names to the committee, and who alone will have the right of taking part in the discussions. The only expense incurred by members will be 12½ francs (10*s.* 6*d.*) for a copy of the report of the proceedings of the session. A card of admission will be forwarded with the receipt for this subscription. Applications for admission are to be made on and after July 1, and members' names will be forwarded and cards of membership distributed on the afternoon of September 18, and the morning of the 19th. Members must have their names put down in the section to which they desire to belong. A member may belong to several sections. The congress will meet twice daily; in the morning for the work of the sections, and to reading the reports of the sections and discussion of their contents. Members wishing to read papers on any subject not

included in the programme, must give notice to the committee at least a month before the opening of the congress. No one will be allowed to speak more than twenty minutes; this restriction, however, does not extend to the sectional reporters. All papers read at the congress must be left at the committee room for publication at the discretion of the committee. The proceedings will generally be conducted in the French language, but foreign members will be allowed to express themselves in their native tongue. If wished, the sense of their discourses will be briefly interpreted to the meeting. The committee consists of M. Vleminckx, president; and MM. Deroubaix, Bellefroid, and Crocq, members; with M. Warlomont, general secretary, to whom all communications relating to the congress should be addressed. The programme of the congress is as follows. 1. *Medicine* (comprising pathology, pathological anatomy, and therapeutics): the prophylaxis of cholera; alcohol in therapeutics; the inoculability of tubercle. 2. *Surgery* (comprising military surgery and syphilography): on surgical anæsthesia; and the dressing of wounds after operation. 3. *Obstetrics* (including diseases of women and children): lying-in hospitals. 4. *Biological Science* (comprising anatomy, physiology, comparative medicine): the vaso-motor nerves and their mode of action; the value of experiments based on artificial circulation. 5. *Public Medicine* (comprising hygiene, forensic medicine, medical statistics): the means of making workshops healthy in which phosphorus is manipulated; the organisation of the public health service; the manufacture of beer. 6. *Ophthalmology*: defects of vision in relation to the military service. 7. *Otology*: the means of measuring hearing and registering in a uniform manner in all countries; defects of hearing in relation to the military service. 8. *Pharmacology*: should the medical employment of chemically defined principles immediately be extended, and should the preparations of them be multiplied in the pharmacopœias? the establishment of an universal pharmacopœia.

'PERFECT DAYLIGHT!'—All persons desiring to improve the lighting of their premises or apartments may easily do so by availing themselves of that most useful of modern inventions, 'Chappuis' Patent Daylight Reflectors.' They can be adapted to any window, skylight, etc. The manufactory is at 69 Fleet Street London.—[ADVT.]

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The London Medical Record.

WEDNESDAY, APRIL 21, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

YEO ON THE PROGRESS OF KNOWLEDGE CONCERNING CANCER.

Dr. Gerald F. Yeo publishes a valuable review of the subject in the *Irish Hospital Gazette*.—The word tumour is now used in a much more restricted sense than is really conveyed by its original meaning, as it is generally applied to such swellings only as are permanent. Some writers call many kinds of fluid collections tumours, while others restrict the term to growths of new tissue. Even this definite but narrow view of the word often leads to difficulty in deciding whether a given swelling deserves the name or not; for it is by no means easy to draw a line between some forms of hypertrophy or hyperplasia, and an enlargement which no one would hesitate to call a neoplasm.

Without going into the question, what is a tumour, let us pass to that which every practical man is tempted to ask when he sees a swelling of any kind, namely, Is it malignant? The surgeon, after his operation, anxiously puts this question to the pathological anatomist, who often can give him only an insufficient answer, as the latter is in the habit of viewing tumours from quite a different standpoint, and makes use of a nomenclature, the very terms of which are strange to the practical man, or if they be familiar, they convey a very different meaning to his mind from that given to them by the pathologist. The fact is, the question, Is it malignant? is purely a clinical one, malignancy expressing a clinical idea that springs from the tendency to destroy life, which exists in a greater or less degree in most tumours, but is fortunately wanting in some few. It is a mere relative term depending upon a number of circumstances, of which structural peculiarity is far from being the foremost.

Some surgeons who see that malignancy must depend more upon clinical than on structural characters, substitute the question—Is it a cancer? But this question is equally hard for a histologist to answer, from the want of an adequate definition of the word. An author writing forty years ago says: 'Although the term cancer possess but little etymological recommendation, the moderns, enlightened as they are by pathological anatomy, employ it with a far more precise and settled meaning than the ancients.' (Cooper's *Surgical Dictionary*, 1838, p. 117.) Can we say this with truth now, when no later than last year, in the discussion of the London Pathological Society—a discussion of which England ought to be proud, thought their President—we find eminent authorities differing materially as to the meaning of the word? (*British Medical Journal*, 1874.) Mr. J. Hutchinson 'protests against the right of modern histologists to give a new meaning to the word cancer;' and Mr. Simon 'wishes to keep the con-

venient word to mean not only various forms of carcinoma, but also sarcoma and glioma.' Cancer is then also alleged by surgeons to be a term expressive of a clinical idea, and appears synonymous with the vague word, malignant tumour. Pathological anatomists ought then to give up the exclusive right of using the word to the practical surgeon who may employ it, either with its ancient and original meaning, namely, a swelling with superficial veins resembling the claws of a crab, or with a more recent practical one, restricting it to carcinoma, sarcoma, and other malignant growths.

The want of a definite and general nomenclature no doubt leads to much confusion; and this confusion must always exist while clinical observers persist in dividing tumours into benign and malignant; or, in other words, arranging them according to the results they may produce on the general system instead of their individual characters. Surely as products of nature, they have a right to some form of classification, founded on their nature and anatomical peculiarities; and when they are so arranged, the various influences exerted by each class upon distant parts of the organism may be more reasonably studied.

As Virchow says (*Onkologie*), pathological anatomy must be treated in the same manner as other branches of natural science. Thus in botany it is no doubt very useful to arrange such plants as are edible or poisonous into two distinct classes, but no one dreams of adhering to such a division to the exclusion of their botanical characters. Such qualities would form a very bad groundwork for scientific classification; for different plants of the same species, or even different parts of the same plant, possess properties which vary much in this respect. Or it may be very interesting, from an ecclesiastical point of view, to divide all men into the good and the bad ones. It would be frequently hard to draw the line between the two, and the degrees of such a distinction would hardly satisfy an anthropologist as adequate characteristics of the various races. So it may be practically convenient to the surgeon to call a certain kind of tumour 'lupus,' but the structure and genetic relations of this wolf of the tissues may differ widely from many others which share its preying propensities.

Of course it is of the greatest importance to study the degree of malignity belonging to each kind of tumour; but it is of much greater importance for pathology, at the present state of our knowledge, first of all to have a definite classification founded on anatomical and histogenetic grounds. In zoology, when a good anatomical classification of animals has been fixed upon, the beasts of prey may be separated from the others, and called a group.

The malignancy, then, of a given tumour ought not to be decided upon until: 1, the class to which it belongs; 2, its anatomical relations; 3, its history; and 4, the vigour of the patient, have been carefully considered.

We find it necessary to use the word cancer in order to give the meaning of some authors; but we wish it to be understood that we do so not in the sense of malignant growth, but in the histological sense, namely, carcinoma or epithelioma, that is to say, containing cells of an epithelial type. Although many of the most malignant growths do not belong to this category, it may be taken as the most surely destructive form of tumour; and perhaps a brief analysis of the steps of progress which have been

made of late years in the study of its structure and development may be interesting.

After Joh. Müller (*Krankhafte Geschwulste*) had applied Schwann's theory of the free development of cell-elements in structureless blastema to the explanation of the formation of pathological growths, he gave the first accurate description of the structure of tumours, but he still adhered to the division into two great groups, 'benign' and 'malignant.' At the same time, however, he distinctly stated that the structural elements of carcinoma differed in no essential point from those of benign tumours, and that the tissue of every tumour had its representative in the normal tissues at some period of the development of the body. In spite of this, which may be considered to be the first great rule in the histology of tumours, the specific cancer-cell, as subsequently described by Lebert, was eagerly clung to as a convenient sign-board of malignancy, and Müller's law was not recognised till long after Virchow had insisted on the facts, that not only each cell in a tumour had its equivalent in the normal tissues, but that it also was the direct descendant of a pre-existing cell, which for him was the connective tissue corpuscle. Thus, the 'cancer-cell' came into disrepute, and pathologists were forced to look to the structural arrangement and the development of a tumour, rather than any specific element, in order to determine its true nature and rank in a scientific classification.

The mode of cell-development, as propounded by Schwann, and accepted by Müller, was disputed from the first by embryologists. Reichert, in 1840, declared that he was unable to observe the formation of cell-elements in structureless blastema, and Remak combatted the theory of free cell-development as quite as unlikely as that of *generatio æquivoca* for living creatures. Doubtless the credit of bringing forward the axiom '*omnis cellula e cellula*' is due to Virchow; for, although Goodsir (*Anatomical and Pathological Observations*, Edin., 1845) and Redfern had described the multiplication of cartilage-cells, their observations remained unheeded till Virchow described the same process to occur in the other connective tissues, the corpuscles of which he made the progenitors of all pathological processes, and the germinative basis of all new growths. Although he did not deny that epithelial cells could reproduce their like, and thus form excrescences such as warts, he considered that the cells of connective tissue could also, by a kind of diseased action, produce epithelium, and this mode of development he believed to be the distinctive characteristic of cancrroid and carcinoma. He described the process as commencing by the nucleation and cellation of connective tissue corpuscles giving rise to an enormous number of small round cells, which, while in an undifferentiated state, he called formative cells (*Bildungszellen*). These then become gradually converted into elements of an epithelial type. This view, which Virchow upheld in both his great works (*Loc. cit.* and *Cellular Pathologie*) with such wonderful power, had certainly the merit of putting out of the field the exudation theory of the humoral pathologists, and bringing the cell forward as the important element.

About the same time, Remak discovered that the earliest trace of the embryo was divisible into three layers, the upper and lower of which were destined to form the skin and mucous tract, and received the names horny and glandular respectively, while the middle layer was devoted to the development of the

intermediate tissues, namely, the connective tissue and its derivatives. He laid down that these three germinal layers not only remained distinct throughout the development of the animal, but that in the adult the descendants of each layer were quite independent, and could only reproduce their like in regenerative processes; thus from epithelia came epithelium, and from connective tissue some form of connective tissue. He also applied this view to the formation of tumours, and said it was more easy to imagine that a small portion of the epithelial germ-layer which had been cut off from the rest or gone astray in the early stages of the development of the fœtus, could, after remaining latent many years become active, and produce a growth with elements similar to its progenitor, than that cells could arise by a form of spontaneous generation in blastema, or in a pathological exudation.

It is, however, to Thiersch's work on epithelioma, published in 1865 (*Der Epitheliakrebs, namentlich der Haut*), that we are indebted for bringing Remak's law of development to bear on the growth of tumours. He endorsed Remak's views, and disputed the power which had been attributed by Virchow to the connective tissue of producing epithelium. After an exhaustive historical and critical review of the literature of epithelioma or cancrroid, he positively states, that the epithelial masses, to which this form of cancer owes its name, does not come from the connective tissues, and he founds his opinion on prolonged personal experience, of which he gives ample evidence by detailing an immense number of accurately observed and beautifully illustrated cases. He supports his views on the following grounds. 1. The transformation from a connective tissue corpuscle to an epithelial cell has never been directly observed. 2. Such a transition is directly opposed to the rules which have been observed to take place in the development of the embryo. 3. It is not supported by the mode by which epithelium is regenerated. 4. Such a theory is unnecessary, as this form of tumour may always be traced to some pre-existing epithelium. 5. The cell-multiplication in the connective tissue of the stroma, is easily explained by the secondary irritation caused by epithelial growth. He considers the starting-point of the process to be a loss of histogenetic equilibrium between the epithelium and the subjacent connective tissue, which latter has lost power with age, while the epithelium has retained its histogenetic energy. An undue proliferation of the under layers of epithelium thus occurs, by which processes are sent down into the connective tissue, which in its turn changes more or less its character, just as it does in the development of many glands, teeth, etc., which start from a dipping in of the external skin. Thus he not only deprived the connective tissue of its power of producing epithelium, but he also gave the epithelium the credit of taking the first step in the process of the development of epithelial tumours.

This was a serious divergence from Virchow's views, and seemed to get a helping hand from the investigations of His, who removed one of the great difficulties with which Remak and Thiersch had to deal (*Die Häute und Höhlen des Körpers*, Basel, 1865). He showed that the cells lining the connective tissue cavities—serous sacs, vessels, etc.—were not really epithelium in the same sense as that on the cutaneous and mucous surfaces, but that they were rather a modification of the connective tissue cells;

and he proposed for them the name 'endothelium,' to distinguish these cells from true epithelium, as he believed they had no connection either with the horny or mucous layer of the embryo.

The cell-elements which are crowded together in the alveoli of carcinoma have been usually acknowledged to resemble epithelial cells, since Virchow called attention to the likeness in his first paper on the subject in 1845 (*Archiv*, Band i.). The modern French school has laid more particular stress on this likeness, and suggested the term 'Epithelial new growth,' instead of carcinoma. The great majority of pathologists who have observed this similarity subscribe to Virchow's doctrine, that the connective tissue is the germinative basis of all pathological change, while Remak's and Thiersch's ideas received but little attention.

However, in an able article published in 1868, (*Archiv*, Band xli.) Waldeyer not only endorsed Thiersch's theory, but extended it to carcinoma; the exclusive origin of which he traced to epitheliiform cells. For him there is no difference between carcinoma and epithelioma, except that their situations lead to different destinies. In all true carcinomata, as in cancrroid, he recognises epithelial cells as the essential characteristic, and thinks the changes which the various tumours ultimately undergo, depend upon the natural degenerative tendency of the epithelium from which it springs. Thus in skin-cancers we frequently find the formation of hard masses of cells, like the horny layer of the cuticle, while in the breast fatty degeneration commonly occurs, which change he regards as an abortive attempt at the formation of milk. After a clear description of the disease in all its favourite seats, he comes to the conclusion, 'that carcinoma is essentially an epithelial growth, and that it only occurs primarily where true epithelium already exists. Secondary carcinomata can only be produced by the direct propagation of the epithelial cells, which may be transported from their primary seat either through the lymph-vessels, or, as embola, are carried through the blood-vessels to a suitable place, where they develop like the germs of entozoa.' He calls attention to the fact that all the common seats of carcinoma are intimately connected with epithelium. He does not believe that the tumours frequently described as true specimens of carcinoma occurring primarily in connective tissue, really belong to that class; and he states that all those diagnosticated as such, which he has had an opportunity of examining, have turned out to be varieties of sarcoma. He describes the mode in which the cells penetrate the tissues, and crowd in the lymph-spaces, so as to form a kind of network. They may also extend to the lymph-vessels, which can be seen distended on the surface of some of the serous membranes. In the solid parts, the tissue between the lymph-spaces forms the reticula of the cancerous stroma, which becomes gradually denser and thicker from the chronic irritation kept up in it by the cell-masses in the spaces producing proliferation of the connective tissue corpuscles. To this source he attributes the broods of small cells which are constantly found in the fibrous trabeculae, and which Virchow thought to be the earlier stages of the epitheliiform cells he saw in such numbers in the alveoli. With regard to the first step in the process, Waldeyer does not agree with Thiersch, as he says, in old age the regenerative power of epithelium is rather diminished, in comparison with

that of the connective tissues, and he believes the disease starts in the connective tissue; which becomes hypertrophied, indurated, and irregularly contracted, probably cutting off from the rest small portions of epithelium, which then rapidly multiply.

In 1869 the views of Thiersch and Waldeyer met an opponent in Köster (*Entwicklung der Carcinome und Sarkome*, Würzburg). This author, following a point suggested by von Recklinghausen, attributes the origin of the 'cancer-cylinders,' as he calls the cell-masses which occur in cancrroid, to the proliferation of the cells lining the lymph-vessels. He disbelieves in Remak's views on development, and discards the name given by His to the cells lining the connective tissue cavities, and, neglecting the distinction, persists in calling them epithelium. He makes fine sections parallel to the surface, as in examining the subcutaneous lymph-vessels, and he describes appearances which may be thus briefly enumerated.

1. In the peripheral parts of all epitheliomata, anastomoses may be seen to take place between the cancer-cylinders.
2. These anastomoses form networks, which in every respect correspond to the plexus of lymphatic vessels under the skin, and appear to be formed of prolongations from them.
3. Often in the centre of these cylinders of cells a round space or lumen exists, which is filled with a material of different refracting power.
4. Sometimes the cylinders are pierced by blood-vessels.
5. The cancer-cylinders are not bounded by any *membrana propria*. From these observations, he thinks he can safely conclude that the cancer-cylinders represent altered lymphatic vessels. By the use of silver impregnation, he is also able to persuade himself that the epithelium of the young cancer-channels behaves in the same way to silver salts, as that of lymph-vessels, with which it agrees exactly in its relations and distribution, but the vessels are no longer covered with the normal epithelium of lymphatics; on the contrary, the cells are opaque, thick and rounded, and he could find every stage of gradation from the normal epithelium to the well marked cancer-cell. He then concludes, that not only do the cancer-cylinders correspond to lymph-vessels, but the epitheliiform cells, which are crowded together in them, are the direct offspring of the pre-existing epithelial cells lining those vessels. He denies that the connective tissue takes any active part in the growth; and even the small cell-brood in the tissue between the cancer-cylinders, he regards as white blood-corpuscles which have wandered out of the vessels. The cells, he thinks, under ordinary circumstances, would pass into the lymph-vessels, and thence back to the blood, but in cancer they cannot do so on account of the lymph-spaces being plugged with epithelial cells; thus he thinks the partial obliteration of the lymph-channels would quite account for the masses of small cells in the connective tissue.

Köster believes that the skin plays but a passive rôle, and has nothing to do with the starting of the disease. Great development of the cuticle, and hypertrophy of the hair-bulbs and papillae, do certainly occur, but only as a secondary affection, depending upon the cancerous degeneration of the epithelium of the lymph-vessels, which excites the neighbouring parts to increased action. This is then quite a new source for the cell-elements in cancer, by which Köster rejects not only Remak's view of development, and denies the purity of descent which Thiersch and

Waldeyer ascribe to pathological epithelial growths, but also takes from the connective tissue the germinative power given it by Virchow.

In 1870 Dr. Classen, of Rostock, made an attack upon the views of Thiersch and Waldeyer, from a different standpoint (*Virchow's Archiv*, Band iv.) The groundwork upon which his theory is built is the emigration of the white blood-corpuscles from the vessels, a process which was first observed by Waller, and subsequently was used by Cohnheim in 1867, as the weapon with which he made his surprisingly successful attack on the schema of cell-division as described by Virchow, after it had reigned supreme for many years in all the schools of Europe. Having demonstrated the wandering capabilities of the white blood-cells during inflammation, he declared their emigration from the vessels to be the great essential in the process, and said that white cells were the only source of pus, boldly demanding, 'Who has ever seen the division of a cell taking place?'

Dr. Classen attempts to depose cell-division from its last holding, by handing over the monopoly of all heterogeneous growths to the white blood-cells, by which accession they hold the same position exactly, as was formerly given by Virchow to the connective corpuscles, which are, according to Dr. Classen, to be regarded as superannuated and useless elements. The white cells of the blood have a great deal to answer for since their erratic propensities were discovered.

Dr. Classen's views are based upon a single case of epithelioma of the sclerotic and cornea, in parts of which he found many newly formed blood-vessels packed with white blood-cells, while here and there such numbers had escaped that the tissue around the vessels was thickly studded with them. These cells, Classen thinks, were transformed into the characteristic elements of epithelioma; they also formed the connective tissue stroma, and the thickening of the conjunctival epithelium. In fact, the ultimate destiny of the white blood-cell only depended upon the peculiar characters of the locality to which it emigrates. The tissue becomes cleft and penetrated in all directions by the increasing number of cell-emigrants, which are rapidly changed to the epithelial type by their associates. During these changes, the cornea-corpuscles can be observed to remain unaltered. He believes the blood-vessels to be the starting-point of the growth; the following being the steps in its progress. In some place, which is covered with epithelium, and which has been for a long time in a state of hyperæmia, arise an immense number of small round cells, which have probably left the vessels, or are at least seen to follow their course in the earlier stages. These cells crowd into the connective tissue spaces, and at the same time assume an epithelial form. The cuticle over the part increases in thickness by the addition of many small round cells, which have the same origin as those in the connective tissue. The growth then encroaches on the neighbouring tissues, being preceded by a continuous formation of new vessels, etc.

In 1872 a second paper from Waldeyer on the development of cancer appeared, in which he adhered firmly to his former opinions (*Virchow's Archiv*, Band lv. p. 67.) He admits the frequent emigration of the blood-cells, but protests against the histogenetic omnipotence given them by some authors. He quite recognises the value of Biesiadecki's discovery, namely, that wandering cells are commonly

found in epithelium; but he disputes their convertibility into epithelial cells, which theory he considers to be an unwarrantable assumption, contradicted by a great number of direct observations of the regeneration of epithelium from old epithelial cells. He has long recognised the fact that the lymph-vessels were the natural channels by which the cancer processes should extend; but he denies that Köster has brought forward any satisfactory proof of the development of the cells from endothelium; and he deems it strange that he, and all other investigators who have repeated his experiments, have failed in producing the preparations he described.

In 1872 Dr. Carmalt (*Virchow's Archiv*, Bd. lv.) attempted to follow Köster's observations, but found that the cells could be displaced from the lymph-vessels in which they were packed by shaking the thin sections, and that when stained with silver they constantly showed the marking of normal endothelium. By examining perfectly fresh specimens with care on a warm stage, he was able to see and demonstrate the fact, that many of the cells lying in the spaces were capable of active amœboid movements. From this he concludes that, though the epithelial cells commonly lie in the lymph-vessels, their presence then is due to their own movements, and not to the propagation of the cells lining the vessels.

In 1873 Dr. Woodward (Toner Lectures), who is well known for his microscopic photographs, published a lecture in which he appears to confirm Classen's observations, and attributes to the white blood-cells the power of producing all the cell elements of cancer.

Last year Perewerseff (*Journal de l'Anatomie et de Physiologie*, 1874) investigated the model of propagation of four cases of carcinoma of the stomach. He could trace the disease in each case to the pre-existing epithelium which penetrated the perivascular lymph-spaces. In the deeper parts also, the spread of the disease followed the course of physiological resorption. He never could find the endothelium of the lymph-channels taking part in the production of the carcinoma-cells; but they rather underwent fatty degeneration.

From the foregoing, it will appear that our knowledge of the structure of tumours has made great progress within the past decennium. The question of the development of carcinoma is far from decided, and a wide field is left open to the workers in the young science of histology. The weight of evidence, however, appears to be in favour of the view, and all the so-called heterogeneous cells of carcinoma are always descended from pre-existing epithelial cells. The acceptance of this theory may force us to restrict our ideas of carcinoma to a small compass, and, with Billroth (*Chirurg. Pathologie*) and Waldeyer to exclude many of the growths commonly placed in that group. But it certainly is more definite than any of the ideas given by other authors, and we generally find that the limits of each group of diseases grow narrower the more definite and accurate our knowledge respecting it becomes.

PUGH ON THE HISTORY AND PROPERTIES OF GUARANA.

The subjoined article by Dr. Finley Pugh, in the *Richmond and Louisville Medical Journal*, gives the most complete account of this remedy which we have met.

Guarana is sometimes called '*Uarrana*,' also '*Narana*,' the latter name signifying a climbing plant, and the former, it is said, having been taken from a tribe of aborigines called '*Guaranis*.' It is sometimes called *Paullinia*, from the generic title of the plant from which it is obtained. It is also known as Brazilian cocoa. This substance is prepared by the South American Indians from the seeds of *Paullinia Sorbilis*, a climber belonging to the class and order octandria trigynia of the Linnæan system, and the natural family of the Sapindaceæ or soapwort order, growing in Brazil; it is also abundant in the province of the Amazonas, along the banks of the Tapajos, Rio Negro, etc., as well as in Guiana and Venezuela.

Paullinia Sorbilis, in a wild state, grows to a height of from thirty-six to forty feet, but its seeds only are used by the natives. Those of the cultivated plant are reserved exclusively for the preparation of guarana for the market. The plant is best propagated from the cuttings, but may also be grown from the seed. It produces fruit from the third year after planting, and thenceforward requires to be pruned precisely as a vine. It flowers in July, and the fruit is ripe in November. The fruit is said to be nearly as large as a walnut, and contains five or six seeds. This is one of the rare specimens of the family, for it will be remembered that the fruits of plants of this order commonly have but two or three seeds. By careful cultivation each stem will furnish four kilos, or about nine pounds of seed annually, and will live for forty years. The fruit of the plant cultivated in the neighbourhood of Mauke is preferred. The Manchees prepare it as follows. They remove the seeds from the capsules in November and dry them in the rays of the sun. After having slightly roasted them over a charcoal fire, they reduce them to a fine powder in stone mortars or in stones hollowed for the purpose; they then moisten the powder with a little water and expose it to the dew by night. In this way they produce a hard paste, often increased in bulk by mixing seeds and fragments of seeds. They afterwards roll it into cylinders of twelve to sixteen ounces each, rounded at each extremity. These cylinders or rolls are dried in the sun or in the chimneys of their huts. They are sometimes called '*guarana bread*,' and are so hard that they have to be broken with an axe, or reduced to powder by means of a rasp. The different manipulations by which the mass is rendered hard conduce to its preservation in a perfect state for many years.

For exportation, the cylinders are enveloped in cocoa-nut leaves and packed in baskets; and in this form guarana appears in the European markets, though it is said that the samples sent from the province of the Amazons to the Paris Exhibition resembled pine-apples in form.

Guarana, perfectly pure when fractured, has a marbled appearance, or rather the appearance of a piece of mosaic work, generally of a darkish or reddish brown colour. The surface is of a shiny or greasy appearance, and the structure amygdaloid. In the middle of somewhat uniform masses are imbedded smaller morsels of two or three millimètres in diameter (one-twelfth to one-eighth of an inch), of which some are of a darker and others of a lighter shade than the mass itself. Almost all of these are covered over with a whitish layer, not clearly definable. The substance is very hard, and is crushed with difficulty in a mortar. The powder is of a bright brown or cinnamon colour, but with very

little smell. But when it has been closely corked up for some time, or when it has been left a few instants in contact with the sides of a hot vessel, it acquires a peculiar odour. Heated slightly in the open air, it has the smell and taste of roasted coffee.

True guarana is distinguished from the inferior qualities by its greater hardness and specific gravity; the powder being of a reddish gray, whilst that of the sophisticated product is of a whiter appearance. Guarana is for the Indians at the same time an indispensable aliment and an universal remedy. They live almost entirely on what is called '*agua branca*,' a mixture of the powder and cold water, somewhat resembling chocolate. They reduce the mass to powder by means of a particular kind of fish-bone, or by sharp stones. The Indians have all the appearance of the freshness and vigour of those who live on animal food. They make use of it, medicinally prepared, with great success in the cases of diarrhoea and dysentery so frequent and so serious in their country; and in convalescent stages it is used as a tonic and stomachic.

The Brazilians and civilised Indians learned from the Manchees the value of guarana, and at first bought it at very high prices. They employ it for the same purpose, modifying its bitter and styptic taste by means of sugar. It is now found in several pharmacopœias. I have noticed it in the German *Pharmacopœia*. It is classed amongst the non-official preparations in the *United States Dispensatory*. It is considered specially efficacious in sick-headache. Something over a year ago it was introduced into this country. It has been my privilege to see its effects in several cases of sick-headache, and in each case it acted very efficiently and promptly; but I have searched the journals (American) in vain for cases treated by it; in fact, it has not come into very general use as yet.

M. Fournier gives as the result of his analysis of guarana, besides tannate of caffeine, the following principles: gum, starch, an acrid, green fixed oil, a concrete volatile oil, scarcely soluble in water, a peculiar principle not precisely determined, and tannic acid. Although caffeine, theine, and guaranine are identical in composition, it seems more proper and convenient to apply to each its separate name, for in this way we are enabled to know the source of our alkaloid from its name, and if we apply the name theine to the alkaloid from tea, and caffeine to that from coffee, why not guaranine to that from guarana?

Caffeine or guaranine is a compound which presents a high degree of interest, both from the metamorphoses of which it is susceptible and from the circumstance that it affords an ingredient in four substances, viz., the coffee and tea plants, the Paraguay tea, and the *Paullinia Sorbilis*, one or the other of which constitutes a portion of the daily diet of three-fourths of the human race.

The fact of its discovery in these different plants belonging to distinct natural families, is a highly interesting result of recent chemical investigations. That these different shrubs should have been selected by different nations for the purpose of yielding a beverage, when infused with boiling water (and in the case of *Paullinia* with cold water) shows that the ingredient which they furnish is one which is adapted in a special manner to some craving of the human frame. The use of coffee as an article of diet appears to exercise an important influence in retarding the waste of the tissues of the body, since

it was observed that during its use the proportion of phosphoric acid and of urea excreted by the kidneys was much smaller than when the coffee was omitted. When a solution of pure caffeine was substituted for the ordinary infusion of coffee, similar alterations were produced in the quality of the urine; hence it is concluded that caffeine, likewise, exerted a power of retarding the disintegration of the constituents of the animal frame.

Tea, as used among us, is known to exhilarate without sensibly intoxicating. It excites the brain to increased activity and produces wakefulness; thence its usefulness to hard students, to those who have vigils to keep, and to persons who labour much with the head. It soothes, on the contrary, and stills the vascular system, and hence its use in inflammatory diseases and as a cure for headache. Its exciting effect upon the nerves makes it useful in counteracting the effect of opium and of fermented liquors, and the stupor sometimes produced by fever. And we would suggest guarana as a good substitute; for in these cases the effect seems to be chiefly due to the alkaloid, and it is much more abundant in guarana, as we have already seen. It contains nearly three-tenths of its weight of nitrogen; a proportion which exists in only a very small number of other known substances.

It is remarkable as being present not only in Chinese tea, but also in Maté, or Paraguay tea, in coffee, and in guarana; and again we say, it is a very curious fact, that in countries so remote from each other plants so very unlike as all these are should have been, by a kind of instinct, as it were, selected for the same purpose of yielding a slightly exciting, exhilarating, and refreshing beverage; and that these plants, when now examined by chemists, should all be found to contain the same remarkable compound body, which we call theine, caffeine, or guaranine.

The observed effects of this substance when introduced into the system, justify this conclusion, and form the third point, which is worthy of remark in regard to it. It is known that the animal body, while living, undergoes constant decay and renovation. The labours of life waste it; the food introduced into the stomach renews it. That which is wasted, off is through the lungs, the kidneys, the alimentary canal, the skin, or in other ways, rejected from the body of the animal. The solid matters contained in the urine are in some degree a measure of this waste; and especially the quantity of urea and phosphoric acid it contains, at different periods, is supposed to measure the comparative waste of the tissues at these different times.

Now the introduction into the stomach of even a minute proportion of this alkaloid—three or four grains a day—has the remarkable effect of sensibly diminishing the absolute quantity of these substances voided in a day by a healthy man living on the same kind of food and engaged in the same occupation under the same circumstances. This fact indicates that the waste of the body is lessened by the introduction of this alkaloid into the stomach—*i.e.*, by the use of coffee, tea, or guarana. And if the waste be lessened, the necessity for food to repair it will be lessened in an equal proportion. In other words, by the consumption of a certain quantity of coffee, tea, or guarana, the health and strength of the body will be maintained in an equal degree upon a smaller supply of ordinary food. These substances, therefore, save food; stand to a certain extent in the

place of aliment, while at the same time they soothe the body and enliven the mind by their tonic, happy-fying, yet harmless action upon the nervous system. Hence they are the poor man's friend, while they are the rich man's solace. In the old and infirm their use serves also another purpose; for in a majority of cases, there comes a time in their lives when the stomach no longer digests enough of the ordinary elements of food to make up for the natural daily waste of the bodily substance. At this period the substances we have mentioned come in as a medicine to arrest the waste, to keep the body from falling away so rapidly, and thus to enable the less energetic powers of digestion still to supply as much as is needed to repair the wear and tear of the solid tissues.

Dr. Gavrelle, who was formerly physician to Don Pedro, in Brazil, and there became acquainted with the virtues of this medicine, called the attention of the profession to it some years since in France. He has found it advantageous in the diarrhoea of phthisis, sick-headache, paralysis, tedious convalescence, and generally as a tonic.

The most convenient form of administration is the fluid extract; this may be given in doses of fss . to fj .

HUBERT ON ANTENATAL BAPTISM.

In the *Cours d'Accouchements*, a recent work on obstetrics by Dr. L. J. Hubert, Obstetric Professor in the Catholic University of Louvain, especially dedicated to the young gentlemen who come to that University to receive their medical education, the author finishes by a special chapter on the subject of antenatal baptism of infants.

When an infant is not in immediate danger of death, it is at the church and by a priest it should be baptised; but when its life is imperilled, baptism may be conferred everywhere and by everybody (ecclesiastic or laic, man or woman, believer or infidel), and it is valid, provided it is administered with the intention, the material, and with the formula required.

Who, in case of peril, should administer baptism?

If the child be born, and a priest be present, he should always perform the rite. The father or mother may perform it only in the absence of any other qualified person. If the infant be born, and there be a man present capable of performing it, he should do it in preference to any woman, or even a midwife. But if the foetus be not born, baptism *in utero* should be administered, either by the obstetrician or midwife in attendance.

The general purpose or intention to do what the Church does is sufficient.

The material is water, pure water, from spring, river or well, and whether previously blessed or not.

The formula is: I baptise you in the name of the Father, of the Son, and of the Holy Spirit.

This formula should be distinctly articulated, and loud enough to be audible to the person himself.

The baptism is absolute or conditional according to circumstances, as we shall proceed to show. The manner varies as to whether the child is born or not.

A. If the child be born, the baptiser should himself pour water on the head of the child at three times, corresponding with the mention of the respective names of the Holy Trinity.

If there be any doubt respecting the life of the new-born, the formula should be modified thus: 'If thou art living, I baptise thee, etc.'

If there exist any doubt of the human nature of the being to be baptised (viz., if a marked monstrosity or rudimentary embryo), it should be added, 'If you are a rational being, I baptise you,' etc. Abortions should receive the rite in the same manner and modified in the same manner as the infant at term.

If the ovum should be expelled entire, the baptism should first be done through the membranes saying: 'If you are fit to receive baptism I baptise you,' etc., then having opened the membranes the rite is repeated, adding, 'if thou hast not been baptised.' When the baptism is thus conditional, the conditions mentioned must be distinctly articulated; it is not sufficient merely to think or to will it. Such is the canonical law.

B. Supposing the foetus is still in whole, or in part unborn, it then becomes necessary to baptise it *in utero*, varying the method according to circumstances.

a. If the head be delivered, it may be baptised either absolutely or conditionally, as if the birth were completed, and no subsequent baptism will be required.

b. But if an arm or a foot present, these parts should be baptised, and the danger persisting, the chest and the head should be baptised, with the formula: 'If thou hast not been baptised,' etc.

c. But if the foetus be still enclosed in the uterus, the baptism should be performed by carrying the fingers, or a piece of lint, or sponge, or using a syphon or syringe, and with the formula as before stated, and modified according to the circumstances. After birth, it may be rebaptised, if alive.

ANATOMY AND PHYSIOLOGY.

VON BASCH ON THE ARREST OF INTESTINAL MOVEMENTS BY IRRITATION OF THE SPLANCHNICS.—Dr. Von Basch (Stricker's *Medicinische Jahrbuch.*, 1874, p. 45) has made a series of experiments in order to determine whether the splanchnic nerves arrest the motion of the intestines by acting directly on their motor ganglia in the same way as the vagus stops the heart, or whether they do so by causing contraction of the intestinal blood-vessels, and thus removing from the intestinal ganglia the blood which acted as a stimulus to them and produced the movements.

The author finds that a convenient way of exciting peristaltic action is to inject nicotine into the veins of an animal. The injection causes immediate tetanus of the intestine, followed first by absolute rest, and then by active peristaltic movements. These movements, as well as those which occur after opening the abdominal cavity without administration of nicotine, can be completely arrested by irritation of the splanchnics, and the intestine also becomes dilated and flaccid. The cessation of movement and relaxation of the muscular fibres, however, do not always occur at the same moment, for sometimes the circular fibres of the gut remain in a state of tonic contraction when all movement has stopped and the longitudinal fibres are completely at rest. The action of the splanchnic nerves in arresting the movements of the intestines was considered by Pflüger to be of the same nature as the action of the vagus in arresting the movements of the heart; but the author was led to the conclusion

that Pflüger's notion was incorrect, by former experiments made by him in conjunction with S. Meyer. At the time when Pflüger wrote, it was generally believed that complete anæmia of the intestine was a cause of movement; but their experiments showed that a diminution in the quantity of blood contained in the intestinal vessels did not occasion intestinal movements, and that the cause of increased peristalsis was to be sought for in the condition of the blood, not in its quantity. They therefore considered that the splanchnics arrested intestinal movements by causing contraction of the intestinal vessels, and thus expelling from the walls of the intestines the blood which would stimulate them to movement. Their explanation has received additional confirmation from the experiments mentioned by the author in this paper, which show that, when the peristaltic movements occur after the injection of nicotine, the blood-pressure continues to sink, indicating that the intestinal vessels have become dilated. The increased movement is attributed to the dilated vessels allowing more blood to circulate in the intestine, and thus increasing the stimulus to their action. When the splanchnics are irritated the intestinal vessels contract, the blood-pressure rises, and the peristaltic movements cease. The arrest of peristalsis occurs at the same time that the blood-pressure reaches its maximum. Both of them occur during irritation of the nerve if it be long continued, but if the irritation be short they both occur after it has ceased. Meyer and the author found that the intestinal movements can be sometimes arrested by stopping the circulation either by ligaturing the thoracic aorta or by irritating the vagus until the heart ceases to beat. Neither of these methods answer well when the peristalsis has been excited by nicotine, as the vessels are dilated by the drug and contain much blood even after ligature of the aorta, and the vagus is also much weakened and does not stop the heart. Irritation of the medulla oblongata in curarised animals has exactly the same effect as irritation of the splanchnics. The blood-pressure will rise and the intestines come to rest on irritation of the medulla, even after both splanchnics have been divided, but not so constantly as when these nerves are intact. The results of irritation of the medulla after division of the splanchnics were not alike in all individuals. In some the intestines stopped, in others irritation of the medulla had little effect. In those where the intestines stopped the blood-pressure rose high, while in the others it only rose slightly. The reason of this variation in the results of irritation in different animals, is that the vaso-motor nerves of the intestine are not all contained in the splanchnics greater and less, but are given off in the roots of all the sympathetic ganglia. When the splanchnics are divided, their place is supplied to a greater or less extent by the other vaso-motor nerves which pass from the lumbar portion of the spinal cord to the abdominal vessels. In the dog this occurs to a considerable extent; but it is slight in the rabbit, which has most of the vaso-motor fibres for the intestinal vessels in the splanchnics. Irritation of the medulla has little action on the intestinal vessels or peristaltic action if the splanchnics have been divided in any animal where the vaso-motor fibres are chiefly contained in these nerves; but it will continue to have an effect if the vaso-motor fibres pass to the intestines by other channels. When the vaso-motor nerves are too weak for irritation of the medulla to cause com-

plete contraction of the vessels, and thus stop the intestinal movements so long as the heart is propelling the blood onwards, these effects may be produced by ligaturing the aorta before the irritation is applied to the medulla. The compression must not be applied at too short intervals or continued too long, or the irritation will cease to have any effect; but if care be taken in these respects, the experiment may be repeated ten or twenty times. When the aorta is ligatured, irritation of the medulla causes very little change in the blood-pressure; it quickens the pulse which had been slowed by nicotine. Stoppage of the respiration irritates the vaso-motor centrum by rendering the blood going to it venous, and produces the same effects as irritation of the medulla, both when the splanchnics are cut and when they are whole. If small quantities of nicotine be injected while the intestines are moving, they immediately make a sudden movement and then stand still. At the commencement of the stand-still the circular fibres are tonically contracted, so that the intestines seem in a state of tetanus. This lasts for some time, and then they gradually and completely relax. This occurs, whether the spinal cord or splanchnics are whole or divided.

T. LAUDER BRUNTON, M.D.

RECENT PAPERS.

On Premature Division of the Brachial Artery. By Dr. Carlo Giacomini. (*Le Mouvement Médical*, April 10, 1875.)

Report on Motor Centres in the Cerebral Convolutions; their Existence and Localisation. By the Committee of the New York Society of Neurology and Electrology. (*New York Medical Journal*, March, 1875.)

On the Excretion of Nitrogen in the Urine. By J. B. Power. (*Dublin Journal of Medical Science*, February, 1875.)

SURGERY.

DOWELL ON RADICAL CURE FOR HERNIA.—Dr. Greenville Dowell, of Galveston, thus describes (*Transactions Texas Medical Society*, 1874) his plan for the radical cure of hernia. The only instruments used are a double spear-pointed semi-circular needle, with an eye in each point, silver wire, a piece of cork, soft wood, or roll of adhesive plaster. The parts being well shaven, three lines are drawn with a brush and tincture of iodine, parallel to the direction of the hernial orifice, the centre line being immediately over the internal orifice and passing down to the external orifice, if the hernia be oblique inguinal; in other varieties, immediately over the greatest enlargement of the tumour. The needle is then taken hold of by the left hand at its unthreaded end; then the right hand, with the thumb and forefinger, pulls up the skin and superficial fascia as high as it can be done to the right of the middle line, letting the middle line be just below the point of the thumb. The threaded end is then pushed through the fold held below the point of the thumb and index finger. The fold is then let loose, and the threaded end taken by its point with the thumb and fingers of the right hand; it is then pulled on until the unthreaded end comes just under the outside line of right side of the operator, and left side of patient. The index finger of the left hand is made to invaginate the integuments as far as possible, and the finger is pushed

to the right under the left tendon of patient, feeling well the wall. The right hand then raises the needle, so as to have its point directly over the point of the finger and a little to the outside of it. The needle is then pushed directly down through the tendon into the peritoneal cavity; at this stage, the point of the index finger of the left hand is carried to the right side of the patient, and held under the tendons; the needle is then moved about to see if it be loose, and turned in its curve so as to carry the curved portion of its point under the invaginated integuments, etc., to about one-quarter of an inch of the right tendon; the end is then brought out on the outside line of the patient's right side; this is done by pressing down on the threaded end held by the surgeon's right hand. The index finger of the left hand is then taken out, and the threaded end let go, and the unthreaded end is taken hold of by the right thumb and index finger of the right hand. It is now gently pulled on until the threaded end comes above the tendon. The point threaded is then reversed, and keeping well down on the tendon, is finally pushed out at the first puncture and pulled entirely out, leaving the two ends of the ligature close together in the same puncture. We have thus put a ligature entirely around the two sides of the rupture, with a sufficient portion of the tendon and muscles to give the thread sufficient surface to act on; and now, by pulling on the two ends, the rupture is closed internally by the replacing of its natural support, and then the ends are tied around a piece of cork or soft wood. If one ligature do not close the opening so that the point of the finger cannot be pushed under the wire, another wire is put in in the same way. Before tying the first, enough must be put in to completely close the rupture, and they should not be more than a quarter or half an inch apart.

The operation can be performed on either side; but it is best in inguinal hernia to start the needle from the side opposite to the ilio-pubic ligament. This enables the needle to be pushed down by the side of the ligament.

This method is simple and easy to perform, and is applicable to all external herniæ. The process is the same, and made with the same needle and silver wire. Of course, it is not applicable to internal hernia, as diaphragmatic, obturatic, ischiatic, entrocystic, invaginal, vaginal and rectal, as they cannot be reached without resorting to the direct method, which ought to be done in all cases of strangulated hernia, when this needle will much facilitate a closure of the incision.

The wires are to be left in from four to seven days, according to the inflammation of the parts. Lotion of sugar of lead and morphine are to be applied externally, according to circumstances.

HAMILTON ON THE DIAGNOSIS OF DISLOCATIONS OF THE SHOULDER.—The *New York Medical Record* of March 27, contains an abstract of a clinical lecture on dislocation of the shoulder by Dr. F. H. Hamilton, author of the well-known work on *Fractures and Dislocations*. After remarking on the frequency of errors in the diagnosis of these cases he gives the following simple method of deciding whether or not the humerus has been displaced. If the result of this examination points to the existence of a dislocation the direction must be ascertained by the aid of the signs usually given by surgical writers.

First. While the head of the humerus remains in

its socket, if a rule be laid upon the outside of the arm from the shoulder to the elbow, it will not touch the acromion process, but will be distant from it at least half an inch, generally one inch or more. On the other hand, if the bone be removed from the socket, in whatever direction it may be displaced, whether forwards, downwards, or backwards, unless the shoulder is much swollen, the rule, placed in the manner above stated will touch the acromion process.

Second. If, standing behind the patient (in case of the right shoulder), the thumb and forefinger of the left hand be made to grasp the top of the shoulder in such a manner that the interdigital commissure shall rest upon the acromion process just outside of the acromio-clavicular articulation; and if then the finger and thumb be dropped perpendicularly, the tip of the finger will (in case the head of the humerus is not dislocated) rest upon the centre of the round upper extremity of the humerus, as it projects in front of the acromion process, while the end of the thumb will rest upon the head of the humerus behind; but the head will be felt indistinctly by the thumb, for the reason that, instead of projecting as it does in front, it actually recedes a little beneath the acromion process. Up to this moment, the surgeon may entertain some doubt whether he is actually grasping with his thumb and finger the head of the bone; but if he now move the elbow of the injured limb forwards, so as to carry the head of the humerus backwards in its socket, he will feel it press strongly upon the thumb, and this will be conclusive. If a dislocation exist, the head of the bone cannot be felt in this situation, and by the thumb thus placed.

J. W. LANGMORE, M.D.

BERTHOLDT ON DISLOCATION OF A CERVICAL VERTEBRA.—Dr. Bertholdt, of Nürnberg, communicates (*Aerztliches Intelligenz-Blatt*, April 6, 1875) the following case of dislocation of the sixth cervical vertebra towards the right side. The patient was a young man, aged nineteen, who, in washing his neck, sharply turned his head towards the left side, and felt a crack on the right, accompanied by severe pain, and inability to get his head back again into its proper position. An hour afterwards he was seen by Dr. Bertholdt, who found him with the face congested and red, the head askew, the chin resting on the left shoulder. On the right side there was stretching and undue prominence of the muscles of the neck, and on the left a corresponding hollow. The spinous processes of the cervical vertebrae were not in a straight line but in a curve, the convexity of which was directed towards the right side. The patient complained of intense pain in the neck, and any attempt at movement was unbearable. The diagnosis was easy. Reduction was attempted in the following way. Dr. Bertholdt got on a stool and fixed the patient's head by taking the occiput and chin in both hands, making extension upwards, using the weight of the body for counter-extension, and by means of a subsequent rotary movement, the dislocation was reduced. The patient was able to move his head readily in all directions afterwards, and soon recovered.

LANGENBECK ON RESECTION OF THE WRIST-JOINT.—At a meeting of the Berlin Medical Society, January 10, 1875 (*Berliner Klinische Wochenschrift*), Professor von Langenbeck brought forward two cases in which he had operated for resection of the wrist-joint.

Resections of the wrist-joint at the commencement of disease are rare, the operation being generally undertaken later on. It is frequently performed on account of tuberculous inflammation, which appears in the form of synovitis. Before suppurative sets in, the bones of the wrist become movable, as the fungous granulations of the synovial membrane destroy the ligaments, thus separating the articulations.

The first case shown was that of a man aged twenty-two, of scrofulous appearance since his sixth year. Some years before, Bürow, of Königsberg, had extirpated the third metacarpal bone, and four years afterwards fresh caries appeared in the metacarpus. Resection by means of the dorso-radial incision was performed, removing all the carpal bones, two metacarpal, and the articular surface of the forearm. Tolerably rapid healing followed in the permanent water bath; fistulous tracks, however, remained, probably occasioned by newly formed bone, subsequently necrosing. The tendons were singularly atrophied. A very satisfactory result followed after active and passive motion, the patient being able to seize objects with the fingers, and to lift any light weight.

The second case was that of a woman, aged forty-four, of a phthisical family. Inflammation commenced in the wrist-joint in October, 1874, and a few weeks later the carpal bones became loosened. Seven weeks after the outset of the disease, excision was performed by means of the dorso-radial incision, and all the carpal bones, except the cuneiform and pisiform, were removed, as well as the articular surface of the bones of the forearm. The synovial membrane was much degenerated, and the intercarpal ligaments were destroyed, so that the removal of the bones was remarkably easy. The patient speedily recovered.

EDWARD BELLAMY.

RECENT PAPERS.

- On Circumcision. By M. Saint Germain. (*La France Médicale*, April 10.)
 Excision of the Head of the Right Humerus for Caries. By Surgeon-Major J. Porter. (*Dublin Journal of Medical Science*, February, 1875.)
 On Polypi of the Posterior Portion of the Nasal Fossæ. By M. Ory. (*Le Progrès Médical*, April 10.)
 Gangrene of the Leg through Embolism of the Popliteal Artery: Amputation. By Drs. Deneffe and Van Wetter. (*Annales de la Soc. de Méd. de Gand*, March, 1875.)
 Vesico-Vaginal Fistula cured by Cauterisation. By Dr. De Lorge. (*Annales de la Soc. de Méd. de Gand*.)
 Rare Case of Internal Strangulated Hernia. By Dr. Leckie. (*Glasgow Medical Journal*, April, 1875.)
 A Study of Two Hundred Cases of Re-Vaccination. By Dr. Ackman. (*Glasgow Medical Journal*, April, 1875.)

MATERIA MEDICA AND THERAPEUTICS.

GRESLON ON THE USE OF CHLORAL IN THE TREATMENT OF WHOOPING COUGH.—Dr. Greslon reports, in *La France Médicale* for April 3, a case in which the patient, a child eight years old, having always enjoyed good health, had a violent attack of whooping-cough. Dr. Greslon observed the case for six weeks. The cough, which at the commencement was almost incessant, went on to very frequent paroxysms of the most marked character, accompanied by vomiting, and especially

by intense fits of suffocation, which constituted the leading characteristic of the attack.

All the remedies usually employed in such cases, opiates, antispasmodics, etc., having had no results, Dr. Greslon tried chloral in doses of fifteen to thirty grains every night. After the administration of this drug, the patient, who was then in the most violent stage of whooping-cough, having on an average a fit every hour throughout the twenty-four, showed a sensible improvement of the symptoms. In four days' time only five or six attacks occurred during the day, and the nights were calm. The symptoms from that time gradually diminished, until, in about ten days after this treatment had commenced, the patient had only two or three attacks in the twenty-four hours, and they were also greatly diminished in length and intensity. The patient, who was very much lowered, recovered his cheerfulness and his usual state of health. Fifteen days elapsed between the first administration of chloral and the cessation of the fits of coughing, so that the action of the drug was very rapid.

CRÉQUY ON JABORANDI IN PLEURITIC EFFUSION.—M. Créquy communicated to the Paris Société de Thérapeutique at their meeting on March 10 (*Bulletin Général de Thérapeutique*, March 30) the case of a man, aged fifty-five, who was attacked on January 10 with pleurisy of the left side. Notwithstanding treatment consisting of purgatives, diuretics, blisters, etc., the effusion increased daily, and the heart was displaced to the right side. Jaborandi was first administered on February 12, in a dose of five grammes (75 grains), which was repeated on February 13, 16, 18, 19, 22, 24, and 28, and March 1; under its influence the effusion was gradually re-absorbed, and each day a notable diminution was observed. The patient is now completely cured.

M. Dujardin de Savignac has sometimes employed jaborandi, and has remarked the facility with which this drug, even in small doses, induces vomiting. To remedy this inconvenience, M. Dujardin Beaumetz uses jaborandi as enemata in doses of 100 grammes of water. These enemata produce salivation and perspiration. In a recent case of uræmia, he used subcutaneous injections of jaborandi with advantage, concentrating into one gramme of liquid the infusion of three grammes of jaborandi leaves. These injections did not bring on any local irritation.

GONTIER ON THE TREATMENT OF TRAUMATIC TETANUS BY HYDRATE OF CHLORAL.—Dr. Gontier, in his *Thèse de Paris*, December, 1874, reports twelve cases of tetanus treated by chloral. An analysis of these leads to the following conclusions. Chloral may render great service in the treatment of chronic or subacute tetanus, and is especially preferable to other drugs. It is completely inefficacious in acute tetanus, and only has a slight palliative action. It may be advantageously associated with tonics diffusible stimulants, and diaphoretics. Intravenous injections of chloral are extremely dangerous, and should in the present state of science be reserved for exceptional cases only.

UNOFFICIAL FORMULÆ.—The following are selected from the unofficial formulæ reported by J. F. Hancock at the last meeting of the American Pharmaceutical Association.

Balsamic Diachylon Ointment (Hebra's Ointment): \mathcal{R} . Pure olive oil, $\mathfrak{f}\mathfrak{z}\mathfrak{x}\mathfrak{v}\mathfrak{j}$; oxide of lead, $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j} + \mathfrak{z}\mathfrak{i}\mathfrak{j}$;

distilled water, $\mathfrak{O}\mathfrak{i}\mathfrak{j}$; oil of lavender, $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{j}$; Peruvian balsam, $\mathfrak{f}\mathfrak{z}\mathfrak{j}$. To the olive oil add half a pint of water and mix thoroughly; then sprinkle in the oxide of lead and again stir well. Place the vessel containing the mixture in a water-bath and stir briskly until the combination is complete. When the ointment is cold add the oil of lavender and the Peruvian balsam, and mix intimately; lastly add the remaining water.

Benzoated Oxide of Zinc Ointment (Kemp's formula): \mathcal{R} . Lard and olive oil, each, $\mathfrak{z}\mathfrak{v}$; white wax and spermaceti, each, $\mathfrak{z}\mathfrak{i}\mathfrak{j}\mathfrak{s}\mathfrak{s}$; oxide of zinc, $\mathfrak{z}\mathfrak{i}\mathfrak{j}\mathfrak{s}\mathfrak{s}$; pulverised gum benzoin, $\mathfrak{z}\mathfrak{s}\mathfrak{s}$. Mix and make according to art.

Tincture of Gelsemium: \mathcal{R} . Gelsemium, in fine powder, $\mathfrak{z}\mathfrak{i}\mathfrak{v}$; diluted alcohol, $\mathfrak{f}\mathfrak{z}\mathfrak{x}\mathfrak{i}\mathfrak{j}$. Macerate fifteen days and filter, or prepare by percolation, making the product measure twelve fluid ounces.

Chloroform and Aconite Liniment: \mathcal{R} . Chloroform, $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{j}$; tincture of aconite root, $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{j}$; soap liniment, $\mathfrak{f}\mathfrak{z}\mathfrak{x}\mathfrak{i}\mathfrak{j}$. Mix them. This preparation has been in use many years in Baltimore under the names of 'compound chloroform liniment,' and 'chloroform and aconite liniment.'

Stokes's Liniment: \mathcal{R} . Oil of turpentine, $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$; strong acetic acid, $\mathfrak{f}\mathfrak{z}\mathfrak{s}\mathfrak{s}$; yolk of egg, \mathfrak{i} ; rose-water, $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$; oil of lemon, $\mathfrak{f}\mathfrak{z}\mathfrak{j}$. Mix.

Aromatic Syrup of Senna: \mathcal{R} . Alexandria senna, $\mathfrak{z}\mathfrak{i}\mathfrak{v}$; jalap, $\mathfrak{z}\mathfrak{i}\mathfrak{s}\mathfrak{s}$; rhubarb, $\mathfrak{z}\mathfrak{s}\mathfrak{s}$; cinnamon and clove, each, $\mathfrak{z}\mathfrak{j}$; nutmeg, $\mathfrak{z}\mathfrak{s}\mathfrak{s}$; oil of lemon, $\mathfrak{M}\mathfrak{x}\mathfrak{x}$; sugar, $\mathfrak{z}\mathfrak{x}\mathfrak{x}\mathfrak{i}\mathfrak{v}$; dilute alcohol, $\mathfrak{q}\mathfrak{s}$. Reduce the root, leaves, and spices to a moderately fine powder, and treat with the diluted alcohol, by percolation, to exhaustion; when about one quart has passed, evaporate by means of a water-bath to eighteen fluid ounces, and filter if necessary. Then add the sugar and dissolve by water-bath heat; when cold, add the oil of lemon. The product should measure thirty-two fluid ounces.

Compound Tincture of Opium (diarrhœa mixture; formula of Dr. E. R. Squibb): \mathcal{R} . Tincture of opium, $\mathfrak{f}\mathfrak{z}\mathfrak{j}$; tincture of capsicum, $\mathfrak{f}\mathfrak{z}\mathfrak{j}$; spirits of camphor, $\mathfrak{f}\mathfrak{z}\mathfrak{j}$; purified chloroform, $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$; stronger alcohol, $\mathfrak{q}\mathfrak{s}$, ad $\mathfrak{f}\mathfrak{z}\mathfrak{v}$. Mix. Dose, one teaspoonful in water for adults.

OBSTETRICS AND GYNÆCOLOGY.

GUEDES ON A CASE OF RECTO-VAGINAL FISTULA; PARTURITION PER ANUM.—At the meeting of the Lisbon Medical Society on February 13 (*O Correio Medico de Lisboa*, February 22), Dr. Ramiro Guedes related an interesting case which had occurred to him.

On April 20, 1874, being then in practice in the country, he was called to see a woman, about thirty-five years old, who was in labour for the third time. Her first labour was difficult, though not requiring instrumental treatment; the child was still-born. In her second labour, the medical man who attended her found it necessary to remove the child, which was dead. The operation was followed by a recto-vaginal fistula, with its attendant inconveniences.

Labour had commenced during the night. When Dr. Guedes was called to her late in the day, he found that she had a dry tongue, thirst, loss of appetite, and repeated bilious vomiting. The slightest pressure produced severe pain in the abdomen, which was much distended, not only by

the fœtus, but by meteorism. The pulse was imperceptible, the breathing anxious and frequent; and the colour of the skin was higher than normal. There was some vesical and rectal tenesmus, and absolute impossibility to void urine or fœces. The uterine contractions were very energetic and frequent.

On examination, the labia were found extremely swollen, red, and tender, as was also the whole perineal region. The vagina was inaccessible to digital exploration for more than about 1·6 inches, in consequence of the general swelling of its tissues, and of the presence of two resisting planes, one above (the patient lying on her back) formed by the pubic arch, and the other below by the head of the fœtus. The head of the fœtus presented at the anus, which was somewhat dilated; the occiput apparently corresponded to the anterior part of the rectum. No force was capable of moving the head from its position.

As the patient was suffering from intense peritonitis, Dr. Guedes judged that it would be useless to attempt to relieve her by perineotomy or any other operation. She died the day after his visit; a necropsy could not be obtained.

In the discussion which followed, Dr. Alves Branco advocated perineotomy in such cases, if the child were alive. Dr. Guedes replied that he had not performed this operation, because the woman was moribund with intense peritonitis, and the fœtus was dead.

A. HENRY, M.D.

WILLIAMS ON THE PERIODICAL RENEWAL OF THE MUCOUS MEMBRANE OF THE UTERUS.—The numbers of the *Obstetrical Journal* for February and March contain an account by Dr. John Williams, Assistant Obstetric Physician to University College Hospital, of some very carefully conducted investigations into the minute anatomy of the mucous membrane of the uterus, with special reference to the changes which are coincident with the phenomena of menstruation.

Until quite lately, menstruation was generally thought to be due to a periodic congestion of the uterus—a form of erection—and that during the interval the organ was in a passive state. More recent observers have shown that the period of uterine activity occupies a longer time than had been previously supposed; they believe that the organ is in an active state of preparation for some time before the actual flow appears, and that another interval elapses after its cessation before the organ returns to a state of rest. Dr. Williams shows, however, that there is no period of rest, that the menstrual flow is only the terminal phenomenon of a cycle of changes which require for their completion the whole intermenstrual period. He gives a detailed account of these changes, as shown by a careful examination of the uteri of twelve women who had died at different known stages of the menstrual or intermenstrual period. Starting from a time just antecedent to the appearance of the menstrual flow, the cycle of changes shown by these twelve specimens is briefly as follows.

1. Acute fatty degeneration of the uterine mucous membrane; this is well marked before any extravasation of blood appears. It begins just inside the internal os, and extends upwards.

2. Beneath this degenerating membrane the subjacent muscular wall is congested, and covered with a layer of actively proliferating cells—the first step towards the formation of a new lining membrane.

3. The hæmorrhage next appears; Dr. Williams believes that this is partly due to the fatty change in the mucous membrane and the active congestion of the subjacent tissue, and partly to muscular contraction of the uterus itself. He finds that the cavity of the organ when menstruation is over, though larger than usual, is smaller than it would be after removal of its lining membrane had not contraction taken place. He found also that, in specimens examined during the flow, the muscular wall was firm and pale, while the peritoneum and broad ligaments were congested. He thinks, therefore, that the contraction of the uterus drives the blood from the muscular wall into the mucous and serous membranes; the contents of the glands and the greater part of their lining epithelium are expelled at the same time.

4. When hæmorrhage has taken place into the degenerated membrane, it undergoes rapid and complete disintegration; in some cases it is entirely removed in three or four days, in others the process occupies seven or eight days.

5. During all this time cell-formation proceeds actively in the subjacent layer; three days after the cessation of the catamenia the lower two-thirds, and at the end of a week the whole, of the body of the uterus is lined with a thin mucous membrane, covered by a fresh growth of columnar epithelium. It is, however, at first of a very rudimentary character, and it is not till just before the period of the next flux that the membrane becomes structurally perfect. If impregnation now occur, it undergoes further development, but failing this, the same series of changes again commences. Menstruation is, therefore, due neither to congestion nor to a species of erection, but to a molecular disintegration of the mucous membrane of the body of the uterus, accompanied by hæmorrhage. The paper is illustrated by some beautifully executed drawings, showing the microscopical appearance of the uterine mucous membrane at different stages of this physiological process.

MATTHEWS DUNCAN ON PUERPERAL ECLAMPSIA. The April number of the *Practitioner* contains notes of an interesting clinical lecture on puerperal eclampsia, by Dr. Matthews Duncan, from which we take the following remarks on the etiology and treatment of that disease.

Dr. Duncan thinks that undue importance has been attached to Bright's disease as a cause of convulsions in pregnant women. That Bright's disease, if present, greatly predisposes the patient to convulsions there is no doubt, but in a large number of cases the fits cannot fairly be ascribed to this cause. It is exceedingly common to find a small quantity of albumen in the urine of pregnant women near the full time, and still more common to find it after fits have occurred, just as it may be found after an epileptic attack. Slight glycosuria may also be found under the same conditions, but the woman would not, therefore, be said to be suffering from diabetes mellitus, neither can she be said to be suffering from Bright's disease because there is a temporary appearance of albumen in the urine.

The fact is that pregnancy itself induces temporarily in a healthy woman a condition of things very like that which is produced in a more chronic form by Bright's disease. Thus healthy women are known to become hydremic in advanced pregnancy; the researches of Gessner show that a woman gains considerably in weight, excluding the weight of the

gravid uterus. Recent investigations by Spiegelberg and Gscheidlen indicate that there is a plethora of this watery blood. Some unpublished researches of Dr. Hardie indicate an increase in the quantity of urea in the blood. The presence of an increased amount of urea in the blood causes, as Mahomed has recently described, contraction of the small arteries and increased blood-pressure; to overcome this, increased power in the action of the heart is needed. To a woman in this condition come the throes of labour, which interfere with the regularity of respiration and suddenly increase the cerebral blood-pressure, flushing the face. It does not seem wonderful that, under this combination of circumstances, fits should occur, and that they should often appear to recur simultaneously with the pains.

As to treatment, Dr. Duncan can lay down no general rule; each case must be treated on its own merits. The most important object is to empty the uterus; but even in this great discretion is necessary, and, if labour be only commencing, forcible delivery should only be performed if the symptoms are becoming desperate, *i.e.*, if the fits become more frequent and severe, and especially if the patient becomes paler and more cyanotic, her breathing shallower, and the coma more profound. It is well to get a free evacuation of the bowels, and the urine should be drawn off and examined. Bleeding, he thinks, is only useful to tide over a crisis; it often produces great temporary relief, but if the cause of the malady be still present, the improvement may be but of short duration. Chloroform and chloral are sometimes useful, but occasionally appear to do harm; and if respiration be imperfect and much cyanosis be present, chloroform must be used with great caution.

BRUNTON ON THE TREATMENT OF PROLAPSED FUNIS.—Dr. J. Brunton calls attention, in the April number of the *Obstetrical Journal*, to a mode of treating this troublesome complication of labour which, though proposed and fully described in 1858 by Dr. Thomas, of New York, has only quite recently found a place in the ordinary text-books of midwifery, and is not as generally known throughout the profession as its success and simplicity deserve. The older obstetricians recommend under these circumstances that delivery should be expeditiously effected by turning or by the use of the forceps, or, if these means cannot be used, that the cord should be pushed up into the uterus, either on the finger or by the aid of a flexible catheter or a piece of whalebone; these expedients are, however, often troublesome to perform, and are in most instances only temporarily successful.

Dr. Thomas was the first to recognise the importance of placing the patient in a favourable attitude before making these attempts at reduction. He found that by placing the woman on her knees with her head down on the bed, 'in the posture assumed by eastern nations in worship,' the cord could not only be readily replaced, but that, if the patient be kept in this attitude until a pain has occurred, a return of the prolapse is much less likely to happen. By placing the woman in this 'knee-elbow position' the cord tends to fall back into the uterus by its own weight; and since the contraction of the uterus at each pain commences at the neck and gradually passes upwards, the cord, once within the cervix, is helped on by the advancing contraction, and fixed in some new position. If it be not thought desirable to place the patient in this crouching posture, she should

be laid on the side opposite to that on which the funis has prolapsed, and the pelvis should be raised by placing pillows under it. Dr. Brunton has adopted Dr. Thomas's plan for some years past with the greatest success; he relates several cases in illustration of its value.

THOMAS ON THE TREATMENT OF EXTRA-UTERINE FETATION BY OPERATION.—On February 7 last, Dr. Thomas, of New York, operated successfully on a case of extra-uterine foetation. He first made an opening into the sac through the vaginal wall, using the galvano-cautery in order to avoid hæmorrhage. Then, seizing the feet, he brought the body of the foetus through the aperture, using a small pair of forceps to extract the head. Part of the placenta came away readily; but in the attempt to get the remaining portion, such profuse hæmorrhage came on that he was obliged to inject a solution of persulphate of iron into the sac, afterwards packing it with cotton-wool. With the exception of some slight symptoms of septicæmia, which soon disappeared under the persistent use of an injection of carbolic water, the patient's recovery was without a drawback. This was the seventh case of extra-uterine pregnancy which Dr. Thomas had seen; all the others had proved fatal except one, in which the foetus was passed by the rectum. In making the diagnosis of extra-uterine pregnancy, Dr. Thomas lays great stress upon the spasmodic attacks of agonising pain, which show that the dilated Fallopian tube has begun to contract upon its contents. This is Nature's warning; and, unless prompt interference be attempted, rupture of the cyst and fatal collapse are almost certain to follow. The case is reported in full in the *American Medical Weekly*.

NOURSE ON A REMARKABLE SUCCESSION OF BREECH-PRESENTATIONS.—Dr. Nourse relates in the *Cincinnati Clinic* the case of a lady, aged forty-three, who had been married twenty-five years, and had given birth to eleven children, all, without an exception, being breech-presentations. The mother was a healthy woman, of medium height, and had a well-developed pelvis. The children were also well-developed, of fair size, and with heads quite as large as usual. There was nothing remarkable about the labours, except the regular occurrence of the exceptional presentation. Numerous theories have, he says, been brought forward to account for the great frequency of head-presentations, and deviations from this rule have been thought to be due to various accidental causes; but none of the prevailing theories will satisfactorily explain eleven successive breech-presentations in the same person.

J. W. LANGMORE, M.D.

RECENT PAPERS.

- Case of Cæsarean Section. By Dr. Landri. (*Lo Sperimentale*, January, 1875.)
- Puerperal Fever and Lying-in Hospitals. By Dr. L. Landau. (*Berliner Klinische Wochenschrift*, March 22 and 29.)
- On Temperature in Puerperal Eclampsia and its Clinical Indications. By Dr. Bournville. (*Archives de Tocologie*, April, 1875.)
- Lectures on Puerperal Eclampsia. By Dr. Peter. (*Ibid.*)
- On the Means of Ascertaining the Length of Gestation. By Vassily Sutugin, M.D. (*Edinburgh Medical Journal*, April, 1875.)
- The Management of Head-first Labours. By Dr. Goodell. (*Philadelphia Medical Times*, March 20.)

MEDICAL JURISPRUDENCE.

SANTLUSS ON THE CONDITIONS OF INSANITY IN MEN, AND THEIR BEARING ON RESPONSIBILITY.*

Under the terms insanity, madness, mania, passion, etc., authors have included very various significations. For the most part, reference has been intended to excessive disturbances of the will, to so-called hyperboulia, to *perversæ voluntates*; and different classifications have been proposed, according as their objects and exciting causes corresponded with the disturbed passion or mania. Hence we have had for instance religious mania, political fanaticism, and a whole crowd of monomanias, whose ontological distinctions Marc has made to coincide, it is well known, with their external objects, according as one or another special eccentric, emotional, or voluntary passion appeared the central point of the diseased and excited condition or affection. We have only to recollect the instinctive and furious manias, as erotomania, suicidal mania, demonomania, kleptomania, and finally pyromania, whose special forms have long been recognised by German authors, and have been treated of by them at the greatest length, but which have not even yet been reduced to any simpler classification. Upon the classification attempted from the iracundia morbosa of Platner to the kleptomania and arson introduced by Casper as ghosts into forensic medicine, depends a whole chain of opinions and views, which have on the whole tended rather to obscure than to make clear the nature of insane conditions. Hence it happens that even at the present time the existence of the specific forms and kinds of mania (as, for example, mania for arson) has on the one hand been denied altogether, and on the other the most contradictory opinions have been promulgated concerning them in different handbooks of forensic medicine.

Considering the very various views held upon raptus maniacus, furor transitorius, insania occulta, etc., the confusion as to their nature and existence is not to be wondered at, nor is it surprising that in recent times many attempts have been made to fix their forensic meaning. From this point of view a threefold inquiry has been raised, whether, namely, (1) attacks of furor transitorius are the consequence of a previously existing mental disease; (2) or whether they occur in previously healthy persons; or whether (3) their very existence is to be called in question. But though authors differed thus widely in their views of these diseases, the relations of the maladies to justice and responsibility were felt to be of greater interest and importance than disputes of writers concerning their nature. And in consequence of this the medical faculty of Bordeaux offered a prize in 1861 on this question: Can disorders of will arise without disorder of intellect; and under what circumstances is irresponsibility for such conditions to be assumed in the sufferers, and what effect should they have on punishment? In Germany also Krävel took a similar line, and insisted on the position that between sanity and insanity there was a borderland of doubtful ground, as there is between day and night a condi-

tion of twilight. In this intermediate state consciousness was not, he contended, quite lost, but was perturbed, and allowance must be made for it in adjudging punishment.

In the following essay the question will be raised, 'Does a periodic madness exist?' Now all nature seems to afford point to the analogical reasoning that there is such a condition. The chyme and blood-phenomena of animals, the phenomena of the vegetable kingdom, and the periodic alteration in the activity of animals, their development, hybernation, and so on, all point in this direction. A similar view is strengthened by the study of the phenomena of polarity, by the maximum and minimum of the pulse, of the ebb and flow of disease-processes and of the phenomena of neuroses and neuralgiæ, etc. From all these, it appears that the basis of paroxysms of violence must be a permanent deflection of the mind, a view supported by the ancients, e.g. Trallianus and Aretæus. Other authorities, as Thomasius, Justinian, etc., deny the existence of the lucid interval. So much for periodic mania in which there are no clear intervals between the attacks.

Quite otherwise is it as regards furor transitorius, mania transitoria. In this the attacks break out like clouds from a clear sky, not preceded by any mental disturbance, and often followed by perfect recovery. Mania *a potu*, mania *e partu*, satyriasis, etc., belong to this group. The difference between the periodic mania and the transitory mania is precisely that between remittent and intermittent fever.

An examination of the views of Platner shows that he recognises two forms of mental disease, which he calls real and unreal. In the real, a desire to attain some real good or ward off some real evil is accompanied by an attack of violence; while in the unreal, the onset of violence deceives partly itself and partly others. Now, sometimes the irritating causes are so violent and continuous that a man may approach insanity. Anyone approaching it so far as to stand between fury and madness will be in a condition above fury (though scarcely mad), and in this class of diseases the insanity cannot be so much said to have intervals of health as that health is interrupted by attacks of deflection of the mind. This go-between state it is of great consequence, on account of public security, to recognise, as it is quite as necessary to punish this hybrid condition of insanity as it is to protect people from it. Platner therefore recognises two kinds of fury:

1. Habitual or real—the consequence of perpetual excitement in the sense or faculty of craving for things (*Begehrungsvermögen*);

2. Acute or unreal—the consequence of morbid irritability of the nerves. Acute fury and furor transitorius are therefore identical.

If fury is but a condition of passion (not accompanied by unconscious causes leading to unreasonable actions) it will not belong to the sphere of mental diseases. For example, it would be wrong to say that, because a man suffered from a choleric and melancholic temperament, passion for drink or sexuality, therefore he was mad, such being in truth moral capacities and energy, contributing to his moral culture and being the basis of his *ego*. Now the question arises—When do these passions change into a morbid mental condition? When is fury, be it furor transitorius or iracundia morbosa, to be looked on as a disease of the mind? The answer would be: Passions are morbid when combined

* From the literary remains of Dr. Santluss, of Diez, published by his son, Ed. Santluss.

with a perversion of the consciousness of motives; consciousness is alienated when the clear representation of object and purpose are not realised by the *ego*. On examining persons affected in these ways, we generally find disturbances in the circulation of the blood, etc. Such intensification of the sentiments may lead to loss of reason.

It may be assumed that in status iracundiosus there is a constitutio iracundiosa which stands in the same relation to exandescencia furibunda as habitus apoplecticus does to apoplectic paralysis. It is wrong to say that psychic diseases (consequently also fury) depend on necessity (*Unfreiheit*). Psychic diseases are the cause of necessity (*Unfreiheit*); and where the attacks of fury are not preceded by a mental alienation there is no morbid fury. As Seneca says: 'For insanity (like anger) is equally unable to effect its purpose, unmindful of what is fitting, forgetful of necessity, pertinacious and dogged in what it has undertaken, shut off from reason and counsel, agitated by trifles, incapable of looking at the true and the right, and very like those ruins which weigh down that on which they fall.' And in another place: 'You may know that they who are possessed by anger are not sane, but are too introspective.'

The existence, therefore, of an independent morbid fury is evident; and in those suffering from it there is not a proper agreement between subject and object.

As for insania occulta, the phenomena of vaccination and of germination prove the possibility and also the probability of a latent disease. In the law courts, the existence of insania occulta is admitted only when it shows itself in psychic perversion. In the sphere of pathology, the latent existence has been long accepted.

Raptus means any passing ecstasy, moral or religious; any violent and sudden exaltation in consequence of any sudden confusion of the will. Hence we speak of raptus ebriosus, libidinosus, erotomaniosus, etc. The nun Blankenbinn, who took a lamb (the lamb Jesus) into bed with her and embraced it, was in a state of erotic ecstasy, but was not in a state of raptus furiosus. Had she killed the lamb in her embraces, the condition would have been one of raptus furiosus, because it led to a violent action. Drunkenness is not a raptus unless followed by a violent or unconscious action; while, if it be thus followed by some illegal action, the raptus is identical with furor transitorius. There is no other distinction than this to be made between these two—that furor transitorius can develop a chronic character, while raptus has reference only to quite sudden foolish behaviour.

It will consistently satisfy the author's point of view to reduce all the conditions of madness mentioned (even iracundia morbose and insania occulta) to furor transitorius, periodicus, and chronicus, and to call it simply furor. The following theoretical classification of furor is given:

1. *Furor libidinosus*: *Sense-madness*.—Arising from wrong activity of the will. Consciousness shows itself in a morbid, violent manner.

2. *Furor hyperscepticus*: *Intellect-madness*.—To this belong mania for collecting, disputing, etc.

3. *Furor ecstaticus*: *Emotion-madness*.—To this belong furor religiosus, platonius, epidemicus seu imitatorius, etc.

The distinction between mania and furor is shown by a story by Reil. A woman during her pregnancy has an incessant craving to eat the flesh of her

husband. She kills him, and pickles him. The killing was the furor, the craving was the mania.

Insane conditions with regard to responsibility.—Mania must not be grounded only upon the morbid sphere of the will, but upon the entire faculties of the mind. The will, before it becomes action, must be impregnated with the consciousness of those conditions which will follow the action. Will, therefore, is nothing defining, but something defined by imagination and accompanying sensations. Therefore mania arises solely from morbid elements of the will, and not from the other faculties of the mind.

Man may become mad in all directions of his mental faculties.—The non-observance of this fact has produced much confusion in the science (?) of mania, because authors were unable to imagine furor without distractions. If will cannot be conceived as apart from consciousness, and therefore apart from the remaining mental faculties, then the thesis will be correct, that with deranged consciousness all psychic actions may change into exaltation, be it as furor transitorius or periodicus. Idiots, whose consciousness is almost *nil*, show this. They are subject to periodic and habitual sexual mania. Thus also people who are deaf and dumb. In educated people we observe maniacal fits in the form of mind-disturbance (*Intellektio-wucht*) and emotional disturbance (*Ideal-wucht*).

The following principle is granted psychologically. Fury may arise not only from a perverted sphere of the will, but from any other perversion of the mind; consequently, also from consciousness; but this principle frequently breaks down from a forensic point of view, as fits of madness (in Germany) are measured by their results in practical law; hence arose the idea of 'free' and 'necessary' (*unfrei*).

[The author then, in the pages following, (1) proceeds to comment on the bearing of free and necessary (*unfrei*) on the German penal code, and (2) indulges in a philological disquisition on the word 'free,' which cannot be condensed, particularly as Dr. Santluss, jun., seems himself to have become hopelessly confused as regards the former, without which the latter is unintelligible.]

The condition of the will, and consciousness of motives, is a matter belonging to forensic psychology—to the medical man; the law (*sollen*) is a matter belonging to the judge.

Man is irresponsible when the following items have not been realised by his consciousness:

- | | |
|---------------------------------|-----------------------------|
| 1. Representative of the object | } Consciousness of motives. |
| 2. " consequence | |
| 3. " purpose | |
| 4. " of his own ego. | |

A judge should be satisfied with the predication mad or not mad, for the purpose of finding evidence for the responsibility of the accused.

The question then arises, how to define responsibility. All human mental activities are based upon consciousness, will; and the fact that our intellect, our reason, is in conformity with reality and truth or fact, justifies us in assuming that we have the right knowledge of our doings and desires; in fact, that we are reasonable, and are able to will the good and true. Quotations are here made from Cicero and Sophocles to point the author's conclusions.

A. RABAGLIATI, M.D. (Bradford).

RECENT PAPERS.

Cases in Medical Jurisprudence. By Dr. Littlejohn. (*Edinburgh Medical Journal*, March, 1875.)

DERMATOLOGY.

HEIBERG ON LEPTUS AUTUMNALIS.—Dr. Heiberg (*Nordiskt Medicinskt Arkiv*, vol. vi. no. 25), remarks that this troublesome parasite (our well-known harvest-bug) gives rise in a certain village of Denmark towards the end of summer to an epidemic which the inhabitants call by a name translated 'boutons d'Août.' All the parasites found by Heiberg belonged to the small red form distinguished by Gudden, and believed to be the male larva. It is clear that the insect cannot go through its transformations normally on the human subject, and the author conjectures that birds are the usual hosts of the parasite. He recommends tincture of the flowers of *Pyrethrum caucasicum*, applied as a lotion, both as a prophylactic and to relieve the symptoms.

J. F. PAYNE, M.B.

RECENT PAPERS.

Ichthyosis of the Tongue and Vulva. By Dr. R. F. Weir. (*New York Medical Journal*, March, 1875.)

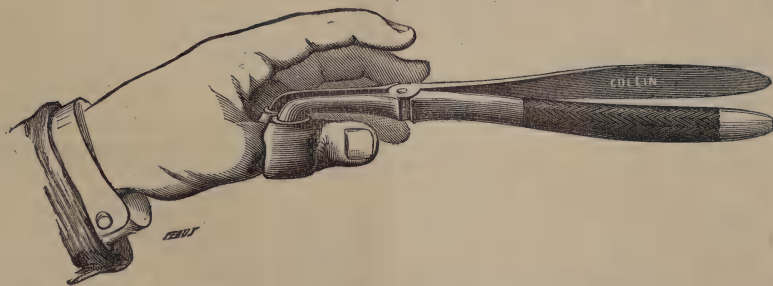
A Case of Unilateral Hyperhidrosis. By Dr. Pokroffsky. (*Berliner Klinische Wochenschrift*, March 29.)

Methods of Physical Investigation in Dermatology. By Dr. Piffard. (*Philadelphia Medical Times*, March 27.)

NEW INVENTION.

FARABEUF'S NEW FORCEPS FOR REDUCING DISLOCATIONS OF THE PHALANGES.

Many methods and various instruments have been proposed to reduce the most common of these dislocations, those of the thumb; but, up to the present time, none of the plans proposed have been of much avail.



was an old man who had had dislocation of the thumb for twenty-four days. The new forceps was successful in breaking the very solid adhesions in every direction and in replacing the thumb without chloroform, in a short space of time, and without at all excoriating the skin. The patient left the hospital after having worn a retaining apparatus for a fortnight. M. Guyon's patient was a young man who had been suffering from a complete luxation backward of the right thumb for forty-eight hours. Chloroformisation was complete, and after failure of methodised and powerful manipulations reduction was obtained with the new forceps, M. Guyon being able to bend, draw, and twist the thumb as he pleased, while an assistant, fixing the metacarpal bone, used his thumbs in coaptation. Considerable force and some time were needed to replace the phalanx, and the forceps never gave any sign of

The forceps *à courroie* does not take a firm grip, can only draw, and generally slip if it is somewhat forcibly drawn. It is quite wanting in regard to movements of flexion and extension, and torsion, which should be used to the luxated part during traction. It also embarrasses the field of the dislocation, and prevents the assistant from firmly fixing the member and also the coaptation.

The new phalanx forceps constructed by M. Farabeuf for M. Collin is not open to the same objections. It is a very simple instrument, which seizes the finger as a *porte-abat-jour* forceps seizes the bougie on which it is fixed. The concavity of the blades and their dimensions have been so calculated as to perfectly embrace the body of the phalanges; the blades of the instrument are finished off by enclosing them in a strong India-rubber tube.

When applied, for instance, to the first phalanx of the thumb, this forceps cannot leave hold even when it is handled by a feeble hand. The movements of extension, flexion, and torsion, the shakings, the sharp tractions, are performed with great strength. On the dead body even the strongest ligaments are broken with facility and without any trace of contusion on the skin. There is, therefore, no reason for continuing to make groping and hazardous subcutaneous sections in difficult luxations. The power of the instrument in its present condition has appeared quite sufficient, and it has purposely been constructed in a light and simple form without any complications likely to unduly develop its power or modify its mode of action. MM. Trélat, Labbé, and Guyon have afforded M. Farabeuf three opportunities of observing dislocations of the thumb. M. Trélat's patient had a dislocation of the thumb backward, which could not be reduced by the forceps *à courroie*, but which yielded to simple coaptation. M. Labbé's patient

slipping, nor was it necessary to repeat the operation. These three dislocations were gradually reduced without the least shock, noise, or concussion.

MISCELLANY.

NORTH LONDON MEDICAL SOCIETY.—A meeting of medical practitioners was held on Wednesday evening, April 14, at the Athenæum, Camden Road, to confirm the proceedings of previous meetings held for the purpose of establishing the above society. The ordinary meetings of this society will be held at the Athenæum, on the second Wednesday in each month, from October to May. It is proposed at these meetings to discuss short papers and records of cases. The following gentlemen were elected officers of the society:—*President*, W. B. Kesteven, Esq.; *Vice-President*, T. S. Dowse, M.D.; *Treasurer*, R. H. Hilliard, M.D.; *Secretary*, W. H. Kesteven, Esq.

THE LATE DR. RUSH.—In a biographical sketch of the late Dr. Rush, of Philadelphia, it is stated that it was he who said, 'Let my epitaph be, He fed fevers.'

FOUR AT A BIRTH.—*The Baltimorean* of February 20 reports the case of Mrs. John R. Hahn, of Baltimore, who gave birth, on February 16, 1875, to four female infants, all of them 'fine, fat, healthy, handsome children.' Mrs. H. is a small, delicate woman, about thirty years of age, born of Irish parents in Baltimore. Physicians from Philadelphia, Harrisburg, Washington, Alexandria, etc., are said to have visited Baltimore to see this remarkable mother and her remarkable progeny.

A USEFUL EXPERIMENT.—In view of the recent unmeasured denunciation of the practice of experiments on animals, it is pleasant to be able to direct attention to an instance in which a human life was saved by the practical application of the latest researches on animals made by the Edinburgh committee on behalf of the British Medical Association. The case is recorded by Dr. Ogilvie Will in the *Edinburgh Medical Journal*, and is one of strychnia poisoning successfully treated by hydrate of chloral. The antagonistic action of hydrate of chloral to strychnia had been proved by this committee, by means of those experiments on animals which have created much indignation in the minds of persons who are doubtless unaware of the inestimable value of such investigations in the mitigation of human pain and suffering.

PROFESSOR BUFALINI of Florence, the author of a well-known essay on Life, and of an esteemed work on Analytical Pathology, died at Florence on March 30, in the eighty-eighth year of his age. His funeral ceremonies were performed on the most splendid scale, and were attended by representatives of all the learned societies of Italy and the Universities of Pisa, Rome, Palermo, Maurata, Pavia, Modena, Padua, and Turin. Amongst the pall-bearers were the Italian ministers of agriculture, commerce and public instruction; the Mayor, and the Prefect of Florence, the President of the Institute, and the President of the Medico-Chirurgical Association. By his will Professor Bufalini has left a prize of 10,000 francs to be awarded every ten years to the writer of the best essay on the true indications of the experimental method in all scientific researches and acquisitions, which shall also embody the applications attained by the divers sciences, and the progress which the experimental method has made, during the period which has elapsed between two competitions.

NURSING IN PHILADELPHIA.—The first training-school for nurses was opened in Philadelphia, in 1839, by Dr. Joseph Warrington, in connection with the lying-in hospital. Dr. Warrington's object primarily was, 'to supply respectable women with medical aid; secondly, to establish a school in which young physicians could become familiar with obstetrics, and good women be trained to become their assistants, and be fitted to take care, not only of the poor, but also of the wealthy patient.' In 1861, when the Women's Hospital was chartered, a training-school for nurses was specifically mentioned as one of its branches; and up to 1872, though in a small way, such training was carried on. In 1872 an endowment of about nine thousand dollars placed the school upon a sure foundation, and thus far forty-six nurses have been under instruction; forty-one of this number have graduated. At the Episcopal Hospital is also a nurses' training-school, which, however, is not yet properly developed. The main difficulty in the way of organising a regular body of trained nurses in Philadelphia, as in other places, is the trouble experienced in finding women who are suitable for the work. During seventeen years two hundred and seventy-five women applied for admission to the school of the lying-in hospital. Only eighty-six were admitted. At the Women's Hospital the forty-six mentioned were selected from one hundred applicants.

THE JACKSONIAN PROFESSORSHIP of Cambridge has been conferred on Mr. Dewar, all the other candidates having withdrawn. Mr. Dewar is widely known as a gifted investigator as well as a first-rate teacher, and his presence at Cambridge will be a great gain, not only to that University, but to English science.

HOW TO KEEP FLOWERS FRESH.—The *Bulletin Français* contains some curious details on the employment of camphor as a means of preventing flowers from withering and of quickening the development of seeds. This stimulant action of camphor was known as far back as 1798, when Benjamin Barton had the idea of placing a tulip in a solution of camphor. The tulip grew vigorously, and greatly outstripped its companions grown with ordinary water. A yellow iris having withered, Barton watered it with camphorated water, and it revived. M. Vogel, of Munich, who has taken up these experiments in a new form, has communicated the results to the Academy of Munich. He threw some powdered camphor into distilled water, and this water, loaded with camphor, acted as a strong tonic on the plants. Two branches of flowering syringa, of equal strength and size, were placed, the one in fresh water the other in camphorated water. A considerable difference in them was soon observed: at the end of twelve hours the branch which had been immersed in fresh water was almost dead, whilst the branch which had been placed in the camphor water was perfectly fresh and in good condition; some of the buds had become developed, and the shrub lasted for three days. In another series of experiments a branch of syringa, which was nearly dead, was placed in camphorated water, and showed marked revivification, which lasted for some time. It then occurred to M. Vogel to water the seeds with camphorated water. He chose stale seeds, which have a weaker germinative power than young ones. These seeds germinated under the influence of this treatment incomparably quicker than those which had been plunged into pure water. It may therefore be taken as proved that the development of seeds may thus be hastened and strength imparted to sickly plants.

GAS SUPERSEDED IN DAYTIME.—In these days of high prices for gas, it is well the public should be reminded of that eminently useful invention, Chappuis' Patent Daylight Reflectors. The price is moderate and the apparatus lasts for a considerable time. Prospectuses may be had at the Factory, 69 Fleet Street, London.—[ADVT.]

NOTICE.

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The London Medical Record.

WEDNESDAY, APRIL 28, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

EVERS ON INDIAN MEDICINAL PLANTS.

In the *Indian Medical Gazette* of February 1 and March 1, Surgeon B. Evers, civil surgeon at Seoni, has some interesting notes on certain Indian medicinal plants. He says: My experiments with indigenous drugs were conducted chiefly with the view of finding some really useful and common antiperiodic; but other drugs attracted my attention, and so step by step I have been lured on, and now I find that a very extensive field of labour lies before all of us. For much that is contained in these papers I am indebted to the valuable works of Roxburgh, Ainslie, Lindley, Waring, Drury, and others; but at the same time I must here state that whatever confirmatory or additional information I have gained, has been obtained by personal observation and experiment. I purpose to take the various medicinal plants I have to remark on, in the order in which they have been tried by me.

Michelia champaca (Nat. Ord. Magnoliaceæ, Champa tree). I was induced to make trial of the bark of this tree as a febrifuge, from what Waring mentions. 'Further trials with this bark,' says he, 'appear desirable.' I tried a decoction of the bark in ten cases of ague, and from my own experience I can safely state that it is invaluable as a tonic and febrifuge. Dr. H. Lolliot, of Mauritius, employed it successfully 'in the treatment of the low intermittent fevers of that island.' (For directions regarding its use, see Waring's *Pharmacopœia of India*, p. 6.) The root-bark is said to be emmenagogue, but of this I have not yet had proof. 'The flowers beaten up with oil are applied to foetid discharges from the nostrils.' From information obtained through the Conservator of Forests, I learn that only one other member, viz., the *Michelia nilagirica*, of this family, is to be found in those parts. This plant is found on the Pachmari hills near the Mahadeo cavern, but in all probability it was planted there. I have not been able to make many trials with this bark, as unfortunately it is not procurable in any considerable quantity in these parts. I leave it to others to test the value of the drug.

Carica Papaya (N.O. Papayaceæ, Pawpaw tree). The milky juice of the unripe fruit has long been known as one of the best vermifuges; and in the West Indies, the seeds powdered are used for the same purpose. The seeds are said to possess emmenagogue properties also. Even the ripe fruit is said to act as an abortifacient, and pregnant women are therefore prohibited from eating it. The juice of the pulp (of the ripe fruit I imagine) removes, it is said, freckles caused by exposure to the sun. Browne, in his *Natural History of Jamaica*, states 'that water impregnated with the milky juice of this tree is thought to make all sorts of meat washed in

it tender; but eight or ten minutes steeping, it is said, will make it so soft, that it will drop in pieces from the spit, or turn soon to rags in the boiling.' Drury says that 'this circumstance has been repeatedly confirmed, and, moreover, that old hogs and old poultry, which are fed upon the leaves and fruit, however tough the meat they afford might otherwise be, are thus rendered perfectly tender and good, if eaten as soon as killed, but that the flesh passes very soon into putridity, nay, the very vapour of the tree serves the purpose; hence, many people suspend the joints of meat, fowls, etc., in the upper part of the tree, in order to prepare them for the table.' In Barbadoes, the farmers mix the milky juice with the drinking-water for their horses, for the purpose, as they express it, 'to break down the blood; and this is a remarkable fact that the effects of this dissolving power in the fruit is not confined to muscular fibre, but acts on the circulating blood.' In 1866, when I visited the island of Barbadoes, I found that the unripe fruit pickled was largely used as an article of diet. In this country it is not only eaten pickled, but also curried. I can assure my readers that the unripe fruit makes a very palatable *chijki* (vegetable curry.) I have employed the milky juice of the unripe fruit in the treatment of splenic and hepatic enlargements, and with good results. I have treated sixty patients with this drug, and in thirty-nine instances a cure was effected; in eighteen cases the results were not reported; and in three cases (of enormously enlarged spleens) relief was afforded. The mode of administration is this. About a teaspoonful of the juice is collected and mixed thoroughly with an equal quantity of sugar; this mass is divided into three boluses; one to be taken morning, noon, and evening. For children, a single drop of the juice, mixed with sugar, is sufficient. The pulp of the unripe fruit (the rind being removed) 'mashed' up with hot water, might be applied as a poultice over the enlarged gland. On this external application, however, I do not place much reliance. No ill effects result from the internal application of the drug. Some of the patients treated complained of a feeling of heat in the stomach, nothing more. When symptoms of gastric or intestinal irritation occur, I have found it necessary to combine opium or hyoscyamus with the juice. The drug appears to me to act as a tonic and deobstruent. My plan for ascertaining that there has been an actual diminution in the size of the enlarged gland, was to mark off with the nitrate of silver the limits of the affected organ when the patient applied for treatment; and after about a fortnight or month, percuss and mark off again in the same way. In very bad cases, I have seen a decrease of from half an inch to an inch in perpendicular dullness. Patients have told me again and again that they felt considerably lighter in the side; and that (*ab khana hazm hota*) their digestion was now good. I believe that the drug is most active in cases where the stage of ague-cake, i.e., the genuine amyloid spleen, has not yet been attained—in fact, when the deposit in the gland is still albuminoid. It acts much more rapidly than the hydrochlorate of ammonia, the bromide of potassium, or the external application of the biniodide of mercury ointment. From twenty to twenty-five days is the longest time that a patient is generally kept under treatment. A nutritious and liberal diet is also an essential adjunct in these cases.

Acorus calamus (N. O. Aroideæ, Sweet-flag). Ainslie says that 'it is a very favourite medicine of

the Indian practitioners, and is reckoned so valuable in the indigestion, stomach-aches, and bowel-affections of children, that there is a penalty incurred by any druggist who will not open his door in the middle of the night and sell it if demanded.' A bath made of the infusion of the root 'is regarded as an effectual remedy for epilepsy in children.' 'Shroder informs us that it possesses virtues in obstructions of the menses, spleen, and liver.' The Egyptians regard it as a valuable aromatic and stomachic. The Turks prepare a confection of the root, and employ it 'as a preventative against contagion.' 'European practitioners have considered the root as tonic and aromatic; and occasionally prescribe it in cases of intermittent fever and dyspepsia.' Dr. A. T. Thomson recommends it as an antiperiodic; and Dr. Æ. Ross reports that it is an excellent stimulant and diaphoretic; he looks upon it 'as most serviceable in atonic and choleraic diarrhœa.' As an insecticide, particularly with reference to fleas, I have always found it very efficacious; but for this purpose, the root must be obtained fresh. Last year, the chief cause of mortality among the house patients of the Seoni Main Dispensary was dysentery; the gaol population also suffered very much from the same disease. The disease is most prevalent about the middle of the rainy season, that is, during the months of July and August. The disturbance probably of the water-supply, especially when this is derived from tanks and streams, and the dampness of the season are, in some measure I think, accountable for the appearance of the disease. In many of these cases, a malarial taint could be detected. *Ipecacuanha* does not, I regret to say, always succeed in these cases. There were no less than sixty-nine cases of dysentery treated in the Main Dispensary during the months of July and August. I found a decoction of the rhizome of the *acorus calamus* very effectual in arresting the flux of blood, especially in the dysentery of children. The decoction is prepared thus: Of the bruised rhizome, two ounces; coriander seed, one drachm; black pepper, half a drachm; water, one pint; boil down to twelve ounces, and set aside to cool. The dose for an adult is an ounce three times daily; for a child, one to three drachms, sweetened with sugar, two or three times a day. Astringent extracts or quinine might be added if necessary. The decoction is not only useful in dysentery and diarrhœa, but also in the bronchitic affections of children. I have often taken it myself when suffering from a bad cold in the chest. I think the drug is one well worthy of more extended trial.

Cochlospermum gossypium (N. O. Ternströmiaceæ). The pods contain a silk-cottony substance that might be used for stuffing pillows, etc. The bark has a faint aromatic odour, and yields on scarification a resinous exudation resembling myrrh. The natives use the branches of this tree for making torches. This plant is said, like the *sterculia urens*, to yield a gum analogous to tragacanth. I have employed a decoction of the bark as a tonic and demulcent in cases of gonorrhœa. Of thirteen cases treated with the decoction, nine were decidedly cures, and in four the result was not known. The patients stated that after taking this medicine the scalding soon ceased. I found it necessary, however, to combine the sulphate or acetate of zinc in quarter-grain doses, to arrest altogether the discharge. The medicinal value of this plant is not, in my opinion, great.

Calosanthus Indica (N. O. Bignoniaceæ). The Gonds call this plant the 'jaimangal;' and it was from a Gond that I first heard of its medicinal properties. The tree is common in Bengal, Burmah, South and Central India, Ceylon and Java. According to Brandis, 'the barks and fruit are used in tanning and dyeing, the seeds are used to line hats, and placed between two layers of wicker-work to make umbrellas. Root, bark, leaves, and seeds are used in native medicine.' The Gonds employ a decoction of the bark as a discutient application to rheumatic swellings. They do not, however, administer any part of the plant as an internal remedy. I have made trial of the powder and an infusion of the bark, and have found it to be most powerfully diaphoretic; the drug has slight anodyne properties; also a bath, prepared with the bark, I have frequently employed in rheumatism. Twenty-eight cases of acute rheumatism were treated with this drug, and in all the results have been most satisfactory. The dose of the powder is from 5 to 15 grains, three daily; of the infusion (1 ounce of bark to 10 ounces of boiling water) an ounce three times a day. Combined with opium, it forms a much more powerful sudorific than the compound powder of *ipeacuanha*. The drug does not possess any febrifuge properties. Roxburgh makes no mention of the medicinal qualities of this plant.

Pongamia glabra (N. O. Leguminosæ). The natives of the south of India thread the legumes and tie them round the necks of children suffering from whooping cough. It is said by them to be of use in these cases. Probably the friction of the legumes against the chest, or it may be, the exhalation from them, might have something to do in mitigating the distressing cough. I have employed the powder of the dried pericarps in the treatment of whooping cough (fourteen cases), and in chronic bronchitis (twenty-five cases), and must acknowledge its efficacy in these affections. Most of my patients were quite relieved in from ten to twelve days. For an adult the dose of the powder ranges from five to ten grains; for children, one to three grains, thrice daily, given with a little syrup or honey. The oil obtained (by expression) from the seeds is employed by the natives in the treatment of 'scabies, herpes, and other cutaneous diseases.' It is also employed as an embrocation in rheumatic affections. According to Brandis, 'the pods and the leaves are used in native medicine.'

Holarrhena antidysenterica (N. O. Apocynaceæ. Seeds).—An infusion of 'the oat-like seeds (Anderjun of the Taleef Shereef) is said to be effectual in arresting hæmorrhage from piles.' 'In the only two cases of this affection that came under my care, I employed the drug with advantage. It is one well worthy of further trial. For further particulars regarding the value of this plant, I must refer my readers to Ainslie's *Materia Medica*, vol. i. p. 88, and to Waring's *Pharmacopœia of India*, p. 137. The bark (Conessi-bark) of this plant has long been held in high repute as a remedy for dysentery.

Jatropha curcas (N. O. Euphorbiaceæ). The juice of this plant is used by natives to arrest bleeding from wounds, etc. The seeds possess purgative properties; and the oil obtained from them is said to be useful in cutaneous affections and in chronic rheumatism. Not long since my attention was attracted to a notice of this plant in the *Indian Medical Gazette*, by Mr. Uday Chund Dutt. He reports that the milky juice of this plant is a most

powerful hæmostatic. In two cases, in which trials were made, he says that the bleeding was at once arrested; and to use his own words, '*the blood seemed to be at once curdled up.*' Before this notice appeared, I had the following case under treatment. Bugloo, aged twenty-five, was admitted into the Seoni Main Dispensary on October 3, 1874. He was suffering from a large open abscess in the heel of the right foot; the abscess had resulted from an injury. The patient stated that it was not so much the pain and swelling of the foot that caused him anxiety, but the frequent hæmorrhages from the abscess. On removing the rags, etc., that enveloped the foot, hæmorrhage (evidently venous) at once occurred. Immediately above the internal malleolus I found a pulsating tumour about the size of a pigeon's egg; pressure on the posterior tibial artery on the proximal side of the swelling at once arrested the bleeding; the superficial veins in the neighbourhood were enlarged, and a faint thrill could be detected in them. Taking into consideration the situation of the tumour, and the character of the hæmorrhage, I diagnosed the case as one of varicose aneurism. The bleeding from the tumour was easily checked by the application of the tourniquet, but the distress occasioned by the pressure of the instrument was so great, that before evening the patient begged that it might be taken off. After this, instrumental and digital pressure were resorted to alternately. In the meantime, the abscess in the heel was gradually filling up. On seeing Mr. Uday Chund Dutt's paper, I determined to give the jatropha juice a trial; and accordingly, on October 12, I injected a drachm of the juice into the tumour by means of the hypodermic syringe. The result was astonishing; in twenty minutes' time the pulsation was so faint that no non-professional person could have detected it; and by evening all pulsation had ceased, a good firm coagulum had been produced. The nozzle of the syringe was retained in the tumour for about ten minutes; and on removing the instrument just one drop of blood escaped through the puncture; a small piece of dry lint and a piece of sticking plaster were applied to the puncture. No ill effects resulted from the injection of the juice. I was anxious to watch the result of this treatment further; but on the evening of October 16 the patient left the hospital without permission, considering that it was no longer necessary for him to stay in Seoni. People from his village inform me that the man is now (fully three months after the operation) quite well. This is only a single case it is true, but it illustrates how a very simple and speedy operation may be had recourse to in place of others more serious. We all know what a difficult thing it is to treat aneurismal affections. Holmes in his *System of Surgery* (vol. iii. p. 512) has the following passage: 'The discovery of a fluid of great coagulating power, and devoid of irritating properties, is a desideratum in this method, *i.e.*, the treatment of aneurisms by injections. I make no pretensions to originality, but I ask that others with better opportunities than myself may give this drug a trial. Two children were brought to me for the purpose of having the frænum of the tongue snipped, and in both these cases, after the operation, I employed jatropha juice as a styptic; there can be no doubt of the value assigned to it by natives. The jatropha curcas is a very common hedge-plant. Drury states that the juice 'is of a very tenacious nature, and, if blown, forms large bubbles, probably owing to the presence

of caoutchouc.' 'A decoction of the leaves is used in the Cape Verd Islands to excite secretion of milk in women.'

Sesamum Indicum (N. O. Pedaliaceæ).—Not long ago I found in the *Pioneer* newspaper that the mucilage obtained from the leaves of this plant is considered a specific for dysentery in some parts of Australia, and this led me to make trial of the drug. Waring remarks on this subject: 'The leaves (*sesami folia* or *Benne leaves*) are official in the secondary list of the United States Pharmacopœia; they abound with thick viscid mucilage, which is readily imparted to water, and an infusion of them is much used in the southern states of North America in all affections requiring demulcents. One or two full-sized fresh leaves, infused or agitated in half a pint of cold water, will soon render it sufficiently viscid for the purpose. If the dried leaves be used, hot water should be substituted for the cold. How far the leaves of the Indian-grown plant may be used in this way, remains to be determined.' I have employed the mucilage, obtained from the leaves of the Indian plant, in the treatment of sixteen cases of dysentery, and in all recovery followed. From six to seven days was the time necessary for such treatment. I confess, however, that my cases were not of the virulent type seen towards the end of the rainy season. The drug acts simply as a demulcent, and does not, in my opinion, exert any specific influence on the disease; furthermore, it is necessary to combine an opiate with it, to relieve the tenesmus, so that probably the opium added has as much to do in checking the disease as the mucilage itself. Waring again states that 'the seeds have powerfully emmenagogue properties assigned to them, and it is believed by the natives and Indo-Britons that, if taken largely, they are capable of producing abortion. The alleged emmenagogue properties of these seeds deserve further investigation.' In three cases of congestive dysmenorrhœa I administered the powder of the seeds in ten-grain doses, three or four times a day, with benefit. I have at the same time employed the hip-bath recommended by Waring. It is commonly believed in the south of India that the seeds, when eaten by a pregnant woman, are likely to induce abortion; but no instance of the kind has ever come under my notice, nor have I heard of any. Further trials with the drug are necessary. The seeds of this plant yield the common til or jingelly oil of commerce. The leaves of the *Pedaliūm murere*, another plant of the same natural order, also yield a viscid mucilage when agitated in cold water. The natives use the mucilage thus obtained as a demulcent and diuretic in the treatment of gonorrhœa, and there can be no doubt of its value in such cases. The plant is very common in the south of India.

LUYS ON THE REFLEX ACTIONS OF THE BRAIN, IN THE NORMAL AND MORBID CONDITIONS OF THEIR MANIFESTATIONS.

Dr. Foville has published the following exhaustive analysis of M. Luys's very important work, in the *Annales Médico-Psychologiques*. He commences by quoting the opening passage of the book. 'The end which I have endeavoured to attain in this work is to show that, amongst the phenomena of cerebral activity, there is a whole series of manifestations, normal and pathological in an equal degree, which are of a reflex nature; that they are, in all respects,

comparable to the similar manifestations of which the medulla spinalis is the seat, and that they are performed in an automatic manner and for the most part independently of the will and the consciousness of the individual.

'In the description of the phenomena which will be submitted to review the following arrangement has been adopted. After having rapidly reviewed the principal characteristics of the purely special reflex actions and shown the general laws which preside over their mechanism and evolution, we shall successively examine in what respects the reflex cerebral actions approximate and in what they differ, as much under the double relation of the constitution of the organic substratum which serves for their manifestation as in the general dynamic conditions under which they show themselves outwardly.'

These expressions indicate very clearly the object the author has proposed to himself, and the method he has employed to attain it. They suffice to give an idea of the interesting nature of M. Luys's researches, and to show that after having, with his well-known minute carefulness, analysed the details of the anatomical structure of the nervous centres, he means to make evident, at least under one of its aspects, the synthetic assemblage of the functions of these organs and of the unity of the mechanism which, notwithstanding a great diversity of external manifestations, really rules all their action. The idea of reflex cerebral actions does not of right belong to M. Luys. It may be found expressed in a more or less explicit manner in a great number of recent works relating to the physiology and pathology of the nervous system, and is amongst those which in consequence of the current of modern physiological studies tend, as it were, to acclimatise themselves in the minds of observers, and which, at a given moment, are found to be part of their acquired notions, without their being able exactly to say where and how they have been acquired. It is therefore the more useful to formulate in a precise manner what every one feels in a somewhat vague way, as a rule, and to substitute in the minds of the profession a scientific theory and a rigorous method of demonstration in place of the more or less undecided notions of which they previously had an intuition.

The theory of reflex movements, produced by setting in action of the excito-motor power of the medulla, is too well known to need repetition. It is enough, like M. Luys, to call to mind that all reflex manifestations are divided into three stages: 1. A first stage, or period of incidence, in which incitation reaches the grey spinal matter; 2. A second stage or intermediary period, which corresponds to the moment when the excitement propagates itself, and gives rise to the activity of the nervous elements set in motion; 3. A third stage, or period of emission, which corresponds to the moment when the primordial element, continuing its evolution, shows itself outwardly, and makes its way along the centrifugal conductors.

The reflex movement results then from a transformation of force, in virtue of which the peripheral sensitive incitations are converted into motor-reactions, or, to put it in a still more concise way, the reflex movements are nothing else but sensibility transformed; and it must be added that, when the functions of the medulla are left to themselves, consequently removed from the influence of the brain, this transformation is automatic, unconscious, inevitable, and actually a matter of necessity. 'A frog

deprived of cerebral lobes when thrown into the water, must swim, just the same as a pigeon without cerebral lobes must fly.' (Onimus, Robin's *Journal d'Anatomie*, 1873, p. 546.)

Starting from these well-founded and now incontestable ideas, M. Luys sees in the structure of the cortical layer of the brain an assemblage of nervous elements, which, as much by their inherent characteristics as by their reciprocal relations, appear to him very analogous to the spinal elements and from the similarity of the material substratum, he believes himself authorised to conclude, and not without probability, the similarity of the action. In this hypothesis the sensorial impressions which, according to him, are centralised in the optic thalami would thence be transmitted to the most superficial submeningeal cortical cells, that is to say, to those which are the smallest and the most analogous to the small grey cells of the posterior cords of the medulla. These impressions would then diffuse themselves from one spot to another, through the superposed cellular zones, intertwined in each other, which constitute the different layers of the grey substance of the circumvolutions, down to the deepest of these layers composed of large cells, comparable to the large cells of the anterior horns of the grey substance of the marrow. 'And it would be as a sequel of this close conflict between the incident impression and the cerebral element, that the latter, transformed, purified, in some degree spiritualised, but nevertheless still preserving its original character, would give birth to the veritable psychic incitation.' This latter, in its turn, would continue its progressive evolution, and would change into emissions of voluntary motricity. The grey cortical substance would constitute 'an admirable sensitive-motor apparatus planned on the same type as the excito-motor apparatus of the medulla, and similarly destined to transform, as an essential piece of work, a sensitive incident impression into a reflected motor manifestation,' (p. 18). The movement which succeeds a psychic operation would also then be a reflex action of transformed sensibility, and this transformation would comprehend, as occurs in the case of the medulla, a period of incidence, a period of elaboration, and a final period of emission. Only, in the cerebral region, all the details of the operation are less simple than in the spinal region. The multiplicity of the cellular zones of the cortical layer; the variety of the anastomoses which connect together the various departments of the circumvolutions; the persistence of former impressions in the active or latent state, and the faculty which they possess of being evoked, and as it were revived by a kind of organic phosphorescence; the modifications which, according to the theories already set forth, by the author, would be imported into the motor incitations reflected along the white centrifugal cords, by the inclination of the cerebellous influx along the striated bodies, of the pons Varolii and of the bulb, are so many circumstances which singularly complicate the phenomenon, so that it finishes by being a more or less complex resultant in the production of which the essential nervous actions find themselves amplified, strengthened and metamorphosed in many various ways in the course of their evolutions. Nevertheless, however, there is always an inevitable, unconscious, and necessary relation of cause to effect between certain incident sensitive impressions and certain methods of motor reflection. And it is thus, for instance, that the in-

voluntary production of the assemblage of movements which express joy, grief, fear, and hope is explained. The same thing also holds of the co-ordinated movements of dancing, the different methods of musical execution, etc. In the visceral domain the same mechanism regulates the echo of the psychic impression on the circulatory, digestive, and generative systems. It gives the key to all which was formerly known under the vague denomination of sympathies. And all these phenomena are so ruled by a pre-established order, an automatic co-ordination, that man considered in time and space is always the same in this respect. In all ages of the individual or the race, in the child as in the old man, in our day as in the most distant ages of history and art, in our country as in the most remote regions of the globe, in the most civilised societies, and as amongst the most barbarous savage nations, everywhere the mode of expressing the sentiments is alike; everywhere to the incidence of the same sensitive impressions, succeeds the same assemblage of unconscious and involuntary motor-reactions. Parallel with these invariably uniform and absolutely general reactions, the same mechanism produces others, which are not innate in all men, but which in certain individuals acquire a kind of *locus standi* by repeated exercise, so that, by long prolonged habit, movements which were in the first instance voluntary are changed into a kind of unconscious automatism.

The retired soldier continues to make his military salute; the sailor walks with his legs wide apart even on *terra firma*; the barrister, when in lay costume, still retains the habit of trying to throw back the sleeves of his absent gown. And it is thus that the external type, corresponding by the attitude, the gesture, the fact, to any given profession, is formed.

The same mechanism is met with in many manifestations belonging to the domain of pathology. Sometimes it is a very lively impression which perpetuates itself, and by its persistence determines the continuation, either of a gesture or an idea, and thus engenders certain forms of catalepsy, or the monotonous and unchanging repetition of a maniacal action; sometimes it is the partial arousing of some sensitive impressions which, coinciding with the sleep of the other faculties, engenders the automatic manifestations of somnambulism; sometimes, even, it is a mental impression either of old or recent date, primary or revived, which determines the explosion of a convulsive fit of hysteria or epilepsy.

In a line with the study of habit, whether physiological or morbid, may be placed that of imitation. It is scarcely necessary to recall to mind the involuntary automatic manner in which certain acts, such as yawning and laughing, propagate themselves by imitation. In many other instances, likewise, crowds of people are unconsciously influenced in what they see around them; whence the likeness in the gestures, the expression, the general manner which is observed in persons constantly living together, the involuntary impulse owing to which in different ranks of society certain impulses, given by persons who for some reasons or the other are in a prominent position, propagate themselves.

The part played by imitation is not less marked in the pathological domain; it is to that which is due the propagation of convulsive epidemics or demoniac madness, and that of certain acts, such as suicide. Up to this time there has only been ques-

tion of what may be called general movements. M. Luys afterwards applies the same principles to the explanation of what may be termed special movements, and which are more particularly intended to serve for a method of expression for purely intellectual operations—by which he understands articulate language, written language, reading aloud, and the outward expression of artistic inspirations. As a prelude to the details of that study he aims at assigning a precise locality to these purely intellectual operations. Dr. Foville is, however, of opinion that before admitting, with M. Luys, that the seat of intelligence itself is thoroughly limited to the middle layer of the grey cervical substance, below the small superficial cells which are purely sensitive, and above the large cells, which are purely motor, it is only prudent to wait for the solution of many of the problems which experimental philosophy has not yet been able to remove from the region of the unknown. Notwithstanding these reserves M. Foville admits, with M. Luys, that 'the action of emitting desired articulate sounds, in a word, language, resolves itself into three successive periods, a period of incidence, a period of intracerebral propagation or intermediary period, and a period of emission or reflection.' (p. 115).

As to the detailed developments relative to each of these periods, though more complicated than those of which mention has been previously made, they have enough analogy with them not to require description here, and will be found fully described in M. Luys's work.

According to him, a great part is played by unconscious, or if it be preferred, mechanical automatism, in a series of acts which are, however, in the first rank amongst those which are considered as the free manifestation of a reasoning will. Here also, Dr. Foville thinks the writer has gone somewhat far, and he is scarcely inclined to admit, with him, that in the most eloquent speeches of the great orators, the succession of the different periods, the regular methods of rhetoric, the movements of passion or emotion, are but the 'inevitable or necessary expressions of the organisation of the human mind in the natural course of its evolutions' (p. 125).

There would be little left to the originality of the individual if all the above came from the simple mechanism of the species, and Dr. Foville recognises in this theory a certain co-efficient of exaggeration. He is also astonished that M. Luys has stopped short in his career, and that after having shown that the theory of spinal reflex movements can in a great measure be applied to movements which have not their starting-point in the brain itself—that, in a word, the as much generalised as special movements (speech, writing, drawing) are in great part transformed sensibility,—he has not been able to extend the same explanation to many intellectual operations not followed by movements, that is to say, to the production of the thoughts themselves.

Are not the conceptions of our mind as much in the normal as in the pathological state the result of the reflexion of incident sensitive excitations?—in other terms, are not the ideas themselves sensibility transformed? This manner of looking at the question makes it more easy to understand the philosophic aphorism, '*Nihil est in intellectu quod non prius fuerit in sensu*,' than any other. Applied to mental pathology, it affords the best explanation of madness with hallucinations. The hallucination in fact being a perversion of sensation, gives an incident ray

tainted with error, and from that time the conception which follows it, like a reflected ray, is itself erroneous and insane. And as these patients labouring under delusions, by the side of their perverted or false subjective sensations, continue to perceive objective sensations in a natural and normal manner,—that is to say that they experience at the same time imaginary and false sensations and real and exact ones,—so their intellectual conceptions, according as they correspond to the one or the other of these kinds of sensation, are also sane or insane. Hence the same person appears mad or sane according as the ideas he expresses result from the transformation of a morbid or a healthy act of sensibility, which gives the key to partial madness, so that, if it be true as Michéa has said, that hallucinations are a kind of delirium of the sensations, it would be no less correct to consider intellectual insanity itself as a kind of convulsion of the mind, that is to say, a morbid manifestation of sensitive-motor or reflex power of the brain; as convulsions are a morbid manifestation of excito-motor or reflex power of the medulla. It might also be said that in the brain, the transmuting organ of sensibility, that is to say, the reflecting mirror, is likely to undergo organic or dynamic changes of which we do not know the nature, but can only record the results; sometimes, for instance, the mirror acquires an excess of polish and brightness, so that the least incidents of sensibility are reflected with an equally excessive promptitude and intensity; sometimes on the contrary, the mirror becomes dimmed and darkened, and all the incident rays are extinguished in it and are absorbed without giving off any reflection. In the first cases, it is easily understood that the psychic and motor reactions are multiplied and tumultuous; they scatter themselves in every sense of the word, succeed each other so rapidly that it is difficult to seize them in transition, which constitutes in mental pathology, the symptom called maniacal excitement with all its shades, from simple mobility to uncontrollable agitation. In the second case psychic and motor reactions are nullified, or more or less weakened, which constitutes all the gradations of melancholy depression, from simple sadness to complete stupor. If these modifications of the mirror be stable and permanent, the forms of mania and chronic melancholia are of an uniform type; if they succeed each other alternately, at shorter or longer or more or less regular intervals, there will be that series of fits of excitement and depression, the succession of which characterises mania of both forms. The different forms of stupor may also be better understood if considered from this point of view. It has been already said that the mirror has become dimmed and darkened, and receives the incident rays without reflecting them. But the darkness may be either superficial or deep. Borrowing M. Luys's hypothesis on the stratification of cortical zones, the incident sensibility may be extinguished and absorbed on reaching the layer of the small sensitive superficial cells, and then the cortical functions are really suspended; no sensation is felt, no ideas are formed, the stupor is real or complete. On the other hand the darkening and the absorption may only take place on the outward surface of the mirror, that is, on the layer of the great motor cells; in this case the sensibility may remain exquisite, the formation of ideas be active and distressing, the motor reaction alone may be at fault; the patient then presents the spectacle of

melancholy with stupor, in which, according to M. Baillarger's fine work, the apparent mask of insensibility may conceal an excessively intense, melancholic and hallucinative insanity.

M. Foville concludes by designating M. Luys's work as one of the most interesting books to be met with, both from the thoughts set down in it and those which it suggests. It is illustrated by plates, some photographed from nature and others to scale, and intended to show the intimate correlation of the reflex movements of the brain with the better known movements of the spinal marrow.

MEDICINE.

MCBRIDE ON THE COMPLEMENTARY PARTS OF DISEASE.—In the *Cincinnati Lancet and Observer* for April, 1875, Dr. Alexander McBride says that by observing apparently trivial symptoms we may be led to anticipate the inroad of serious disease. By 'complementary parts of disease' he means those symptoms and signs which are sure precursors of something to come, or which may with certainty be expected to follow that which has already appeared.

Stoppage of the lochia may, for instance, be regarded, as a rule, as the precursor of a grave inflammatory disease. There is a similar relation between 'heat-rash' (*lichen tropicus*) in children, and *cholera infantum*, the latter of which very frequently appears a few days or weeks after the disappearance of the former. A woman complains of paroxysms, of palpitation, and dyspnoea, dizziness and general discomfort when she knits or sews, belching, flatulence, rumbling of the bowels, pain near the apex of the heart, and at the middle of the left arm, hysterical convulsions, and numerous other distresses. She has also a troublesome cough and soreness all over the chest, and there is great tenderness over the cervical and dorsal vertebræ. Such a case has been treated sometimes for consumption, and sometimes for spinal disease. The entire train of symptoms is caused by leucorrhœa, or by some uterine displacement, which may have been in existence some years. It is at least certain that by curing the leucorrhœa and malposition of the uterus, if any exist, the whole series of reflex ailments disappear. And again, a woman near middle age, complains of aphonia, loss of strength, sweating. The urine is pale and copious. The symptoms are not constant, but are frequently repeated without any apparent provocation. An examination will reveal a large and flabby uterus. The case is relapsed uterus, and a proper use of ergot will cure it promptly. Iron may follow. A woman presented herself with an obstinate eczema covering one side of the face. There were also found severe dysmenorrhœa, narrowing of the cervix, and great irritability or cervicitis. The proper treatment of the latter conditions cured her face, and the cure was permanent. Endometritis is sometimes accompanied by pain in the hip, which has been mistaken and treated for coxalgia. A persistent headache, which is independent of fever or gastric derangement, is frequently followed by an eruption of some sort. Cutaneous eruptions are complementary of internal disease. Acne is generally supposed to be connected with some kind of sexual irregularity; but those who suffer from it are ravenous eaters. This fact points to the stomach

and duodenum as the seat of the disease. Arsenic probably cures cutaneous diseases by curing the internal diseases upon which they depend. Herpes zoster is clearly the complement of something internal. Cases are met with in which a mild pneumonia, or pleuro-pneumonia, or bronchitis, or all three of them is associated with a rash resembling scarlatina and measles. These cases are seldom severe when the rash co-exists, and require very little treatment. Measles is the completion of a disease which was originally a slight congestion of the lungs, or more especially of the bronchial mucous membrane, and the eruption of scarlatina bears a similar relation to the region of the throat. Tinea capitis of children, if dried up, is generally followed by hydrocephalus, encephalitis, cerebritis, meningitis, or some such disease. The best treatment is to apply a blister all over the scalp. 'It is not necessary to shave the scalp and apply a plaster. Cover the scalp with cantharidised oil or tincture of cantharides, and then cover with oiled silk, a greased cloth, or green leaves, and you will have blister enough.' In syphilis, where there are copious manifestations of the disease on the skin and subcutaneous tissue, the bones and other internal parts almost wholly escape. When general rheumatism and endocarditis co-exist, the cardiac complication is less grave than when it exists primarily, or follows the disappearance of the rheumatism. The phrenzy which is liable to follow is but a symptom of endocarditis. A vesicular eruption or punctate rash frequently accompanies rheumatism, and the violence of the disease appears to be moderated by its appearance. The beneficial effect of blistering appears to result from 'the restoration of the lost element—the complementary part.' A continuous recurrence of fugitive lancing pains in various parts of the body (chiefly in the fibrous tissues) is indicative of cardiac disease, generally organic, but sometimes functional. In other words, these pains are complementary of cardiac disease.

[The frequent co-existence of herpes labialis and pneumonia may be mentioned as a good example of the associations of disease. Such cases are very common in this district. If a person has smart feverish symptoms along with herpes labialis it may at once be predicted that the case is one of pneumonia and that convalescence will be ushered in on the sixth day of the disease, more especially if the patient is under thirty years of age. The pneumonia is sometimes so slight that it is necessary to make a careful physical examination before the disease can be detected. On the other hand there is very high delirium, even in slight cases: so much so that I have known such cases to be treated for encephalitis. Cases of what, from the absence of a rash, must be regarded as ordinary sore throat are frequently followed in a fortnight by acute rheumatism. It is quite possible that such cases are suppressed scarlatina. I have, however, noticed the association between the two diseases so frequently that I have on more than one occasion been able to foretell to a day the advent of rheumatic fever. The correlations of psoriasis, bronchitis, and gout will readily occur to every medical man.—*Rep.*]

JAMES ROSS, M.D.

JÜRGENSEN ON ACUTE PNEUMONIA.—One of the later volumes of Von Ziemssen's *Handbuch* contains a treatise on pneumonia by Professor Jürgensen, of Tübingen, who has for many years made a special study of the disease; and his views as to its nature and treatment deserve to be known in

England, though they are far from being generally accepted by German physicians.

He is a strenuous upholder of the theory that acute fibrinous pneumonia is not a local, but a general disease, and gives the following reasons for holding this opinion. It has not the same geographical range, nor is it most frequent at the same seasons of the year, as bronchitis, which is confessedly a local disease, and when individual cases come to be examined, it is found that external causes (cold in particular) have a very doubtful influence in its production. By its anatomical character (fibrinous exudation into the alveoli) the disease differs from all other forms of pulmonary inflammation, whether natural or produced experimentally. There would appear to be no constant proportion between the local state and the pyrexia, extensive pulmonary consolidation being often accompanied by very moderate amount of fever, and *vice versa*; moreover, the fever runs a certain definite course, beginning before any local mischief can be detected, and ending before the inflammation has subsided. Jürgensen considers pneumonia to be most akin to acute rheumatism and cerebro-spinal meningitis, both non-contagious diseases, but which he looks upon as produced by some external cause of infection similar to that of malaria.

If this be a correct view of the disease, it follows that the physician has not so much to attempt to 'strangle' it, as to preserve life until nature can effect a cure. Now the degree of danger to life depends less upon the potency of the pneumonic poison than upon the patient's power of resistance, in which respect the disease contrasts strongly with such maladies as diphtheria or plague, where the activity of the virus seems to be the essential element of fatality. Our author teaches that the one cause of death in pneumonia is insufficiency of the heart's action, to which both the local mischief and the pyrexia tend, although in themselves they would not prove fatal; for the pneumonic exudation disturbs the circulation through the lungs, and so throws more work upon the right ventricle, while the fever overworks the organ by increasing the frequency of its action, while (as Zenker and Liebermeister have shown) it directly tends to produce degeneration of the cardiac muscular fibres. Since, then, nothing can be done to remove the exudation matter in the lung, Jürgensen considers that the aim of treatment should be to diminish the amount of fever; he rejects digitalis, veratria, and tartar emetic, which he considers to have too depressing an effect upon the heart, and employs only cold baths and quinine.

The baths are administered in every case of pneumonia, whenever the temperature reaches 104°; ordinary cold spring water is used, and the patient is left in the bath from five to seven minutes, according to the effect produced upon the temperature of the skin. In severe cases they may be frequently repeated, and when the patient is very feeble, or the temperature is not so high, luke-warm water may be used, the bath being then continued for from twenty to thirty minutes. In all cases an alcoholic stimulant is given before and after the bath, the quantity being regulated by the state of the pulse. The bath is usually given in the morning, and in the evening the patient takes three grammes of quinine dissolved in water with hydrochloric acid; this will keep the temperature down for at least twelve hours, the thermometer usually falling from 3 to 4·5 degrees for

the first five or six hours after the dose has been taken. If the pyrexia is greater than usual the dose of quinine is increased; in severe cases our author has ordered five grammes (about seventy-five grains) of quinine at one dose, and has never observed any evil results, the pulse (on the contrary) improving in fulness and strength as the temperature falls; he also claims for the quinine that it relieves the insomnia from which pneumonic patients so frequently suffer. Whatever dose may have been given, it is repeated every other night, this being found quite sufficient to keep the fever in check. His patients are allowed a liberal diet, usually a little meat and bread-and-butter two or three times a day, and, in bad cases, he is not sparing in administering strong broth, eggs, and wine.

He quotes the returns of the Basle Hospital, as compiled by Fisser, to show the success of his treatment; they appear to prove that while the mortality under the 'school plan of treatment' (whatever that might be) was 25 per cent., it was reduced, during the years 1866-71, when his 'anti-pyretic' method had been adopted, to 16.5 per cent.

[As to the harmlessness of large doses of quinine, it may be interesting to remark that Leibermeister, who treats enteric fever on nearly the same general principles, always gives quinine in doses of twenty-four to forty-five grains, and sometimes more, and that he has never seen any harm result from these, or even larger, doses.—*Rep.*]

J. R. GASQUET, M.B.

LEARNING ON THE DIAGNOSIS OF MITRAL REGURGITATION: THE CAUSE OF THE FIRST SOUND OF THE HEART.—Dr. James F. Leaming, in the *New York Medical Record*, April 3, holds that Dr. Camman has demonstrated by pathological investigations that the signs of mitral regurgitation, as generally taught—namely, the presence of murmurs at the apex of the heart, denominated blowing, sawing, rasping, etc.—are not reliable; but that the true invariable sign is a murmur of an entirely different character—a soft murmur, a friction murmur, such as is heard naturally when fluids are forced through comparatively small openings, and is heard behind, between the seventh and eighth vertebrae, close to the spine. This is the only sign certainly diagnostic of mitral regurgitation. Dr. Leaming goes on to say that, such being the case, the mechanism of the first sound of the heart becomes a matter of high importance in the diagnosis of functional as well as organic murmurs. After giving the theories ordinarily held as to the cause of the first sound of the heart, the writer says: 'As none of these theories seem to accord with all those conditions present in the organ, especially with the acoustical conditions, he had been impressed with the truth that they do not give satisfactory evidence of the real origin of the first sound, and that we must direct our attention to the heart itself for the new proof. When we come to examine the heart itself, we find within it a musical arrangement, a drum-like expansion, to which are attached tendinous chords that are held in position through the intervention of muscular fibres. It seems incredible that such admirable conditions for producing sound-vibration should have been so long overlooked by so many able observers as the most probable cause for the first sound of the heart. That the first sound is produced by the vibrations of the *chordæ tendineæ* is a reasonable position to take; and if the doctrine can

be proved by pathological evidence, it will very much simplify our investigations. If plastic lymph be excluded upon the surface of the valves, and at the same time the *chordæ tendineæ* are shortened and thickened by the presence of plastic lymph, or glued down upon the surface of the valves so as to prevent vibration, and then if the first sound is altered or murmurs abolished, it must be that the proof is sufficient that they are the parts directly concerned in the production of the first sound.' He also says: 'Experiments have been performed by various experimenters, in which it has been shown that when blood is arrested from entering the cavities of the heart all sounds are extinguished, and that they return with the admission of the blood, and also that the first sound is produced when only a small quantity of blood is permitted to enter the ventricles. The fact that the first sound disappears under these circumstances, and all murmurs connected with the first sound also disappear, is to be regarded as an indication of sound-vibrations, and is equally convincing as the hooking up of the curtain of the aortic valve is proof of the mechanism of the second sound of the heart.'

J. MILNER FOTHERGILL, M.D.

DROUET ON ALCOHOLIC EPILEPSY.—Dr. Drouet has collected a number of cases of epilepsy occurring in drunkards, in whom no other cause for the epileptic attacks could be found than acute or chronic drunkenness. Of 442 male drunkards 45 were epileptic; of 87 female 9 were epileptic. Among drunkards below thirty, the proportion of epileptics was 1 in 15; between 30 and 50 it was 1 in 8. Epileptiform attacks very rarely occur in acute alcoholism. Drouet reports one case at length, but in that the fit occurred while the patient was at the guard-house, before he came under observation.

The cause of the attacks in acute alcoholism the author seeks partly in the idiosyncrasy of the patient; partly in the chemical change undergone by the alcohol in the organism—the transformation into oxalic or carbonic acid being more likely to cause convulsions than the others; and partly in the pathological change, the amount and position of cerebral congestion, and the occurrence of small cerebral hæmorrhages. With regard to the influence of the nature of the liquid ingested, the author considers, in spite of the experiments of Dr. Magnan showing that alcohol never, and absinthe frequently, produces convulsions in the lower animals, that in the human subject alcohol is the main cause and absinthe very rarely gives rise to epileptic seizures.

In chronic alcoholism convulsion most often follows an unusually great excess; sometimes it comes on in the course of continued intemperance, without there having been actual drunkenness or delirium tremens, and in other cases it attacks those who are debarred from drink in asylums, sometimes after long-continued abstinence.

Under the head of pathological anatomy many lesions are enumerated, none of which, the author is careful to say, can be considered characteristic.

The prognosis is not good. Of the 54 cases 3 died (two from causes foreign to the malady), 12 are considered incurable, and the rest recovered in periods varying from 1 month to 2 years.

The treatment was bromide of potassium or arseniate of soda, with abstinence from intoxicating drink and regular living.

[Epilepsy is a most difficult pathological problem. Alcoholic epilepsy must be an exceedingly difficult

one. Great credit is due then to any one who takes pains in trying to clear up our difficulties on the subject. The above abstract of M. Drouet's paper will, we think, suffice to draw the attention of English readers to what he has written, and lead to a careful study of the original paper by those specially interested.—*Rep.*] J. HUGHLINGS JACKSON, M.D.

ALLING ON INJECTIONS OF MORPHIA.—Everything relating to the study of hypodermic injections is deserving of attention at the present time, when this therapeutic process is likely to be more used every day. Although the question of pain induced by the liquid of the injection at the moment it penetrates into the conjunctive tissue, has long been overlooked, yet it none the less deserves attention, since it is enough to prevent many timid people from using a plan of treatment from which the best results may be expected. In relation to this point Dr. Alling communicates a short note to the *Alger Médicale*, no. 24, in which he studies the nature of the liquids containing cherry-laurel water. He has tried on himself solutions of morphine containing cherry-laurel water in different proportions. Solutions of morphine in pure cherry-laurel water are extremely painful, but when the solution only contains a fifth part of cherry-laurel water the pain is very slight. He recommends this formula: Chlorhydrate of morphine, one decigramme; distilled water, four grammes; cherry-laurel water, one gramme. He is not yet in a position to say if this proportion of cherry-laurel water is sufficient to preserve the solution.

RECENT PAPERS.

On the Cause of Temperature in Defervescence. By Dr. Finlayson. (*Glasgow Medical Journal*, April, 1875.)
Coryza. By Dr. E. L. Shurly. (*Detroit Review of Medicine*, April, 1875.)
On Rheumatism. By Dr. Michel Peter. (*La France Médicale*, April 7.)
Recent Progress in the Treatment of Throat Diseases. By Dr. F. J. Knight. (*The Boston Medical and Surgical Journal*, April 1.)
Contributions towards the History of Glycosuria. By M. Andral. (*La France Médicale*, April 14 et seq.)
The Treatment of Scarlatina. By Dr. Little. (*Dublin Journal of Medical Science*, April, 1875.)
Remarks on Typhus Fever. By Dr. Macnaughton Jones. (*Ibid.*)
Note on a Case of Embolism of the Left Sylvian Artery, with Infarctus of the Spleen, Heart, and Intestine. By M. Mayet. (*Lyon Médical*, April 18, 1875.)

SURGERY.

MARTELLI ON A CASE OF EXTIRPATION OF THE LARYNX.—In a communication to the *Gazzetta delle Cliniche*, for March 9, Dr. E. Martelli, surgical assistant in the hospital at Novara, records a case in which the operation of extirpation of the larynx was performed by Professor Bottini.

The patient was a countryman, aged thirty-four, who had for some time suffered from attacks of orthopnoea, from a mechanical obstruction in the larynx. In August, 1874, the dyspnoea was so urgent that laryngotomy was performed in the crico-thyroid space; this relieved him, and a tube was left in the opening. In October, Professor Bottini was called to see him in consultation with Dr. Perassi. The galvanic cautery was applied with the object of freeing the larynx from the morbid growth which

occupied it; but the larynx remained impervious to air. Attempts were then made to dilate the parts by means of laminaria tents; but, though repeated several times, they were not successful. The patient was accordingly admitted into the hospital, and Dr. Bottini extirpated the larynx on February 6 of this year. Chloroform was not given.

An incision about five centimètres (nearly two inches) in length was made from the hyoid bone down to the artificial opening in the larynx; then, by means of horizontal incisions to the right and left, two flaps were formed, which were dissected up and turned outwards. The anterior part of the larynx was then carefully laid bare, the edges of the wound being held apart by hooks, and the connection between the larynx and the œsophagus was severed by means of the fingers and blunt instruments. This part of the operation was rather difficult, in consequence of the shortness and thickness of the patient's neck, and of his continued attempts to expectorate. These attempts were so violent that the patient, three or four times during the operation, expelled the cannula with the sputum. It was found impossible to remove the larynx by at once cutting it free from the trachea below and the hyoid bone above, and the process had to be suspended several times to allow the patient to relieve himself by coughing up the mucus and blood, which escaped into the trachea notwithstanding all the care that was used to prevent it. Several arteries, especially the two superior laryngeal, were tied, and the galvanic cautery was applied to others.

The subsequent history of the case shows that on the 11th erysipelas set in, but disappeared by the 21st, from which time the patient's temperature did not exceed 98.9° Fahr. and the pulse 80. He was on the latter day able to swallow fluid and semi-fluid food; the paroxysms of cough had become rare and slight; the wound had healed, for the most part by the first intention notwithstanding the erysipelas; he slept fairly well at night; and altogether his condition was promising.

No account is given of the nature of the disease for which the operation was performed; but Dr. Martelli intimates that a complete account of the case will be published by Professor Bottini.

A. HENRY, M.D.

GOLDSCHMIDT ON A CASE OF FOREIGN BODY IN THE NECK.—Dr. Eman. Goldschmidt reports (*Medicinisch-Chirurgische Centralblatt*, no. 14-15, 1875), a case in which the blade of a bread-knife was removed from the side of the neck, where it had remained for two years and a half. The patient, who was a soldier, first presented himself in May, 1873, with his head bent forwards and to the left side, and immovably fixed in this position. The soft parts over the mastoid process of the right temporal bone were much swollen, and in this region was a round ulcer having an unhealthy looking surface. The right auditory meatus was filled with thick and ill-smelling pus. This condition was supposed by the patient to be the result of an accident which happened to him whilst felling timber, in which a heavy piece of wood fell upon the side of his head. Dr. Goldschmidt diagnosed the case as one of necrosis or caries of the mastoid process following acute periostitis. There was supposed to have been some absorption of the mastoid process, and a probe could be readily passed from the surface of the ulcer into the right auditory meatus. The

corresponding membrana tympani remained intact, and hearing was good. The integument in the neighbourhood of the ulcer was red and inflamed, and the glands on the right side of the neck were hard and swollen; just behind the lower angle of the lower jaw was a small jagged opening, from which a considerable quantity of pus could be pressed out. In December of the same year the patient again applied to Dr. Goldschmidt, and stated that he could feel with a probe a loose rough body below the ulcer behind the right ear. The general health had been much impaired, and an abscess of the size of a hen's egg had formed on the right side of the neck. An attempt was made to remove the rough and movable body from over the right mastoid process, but in consequence of free hæmorrhage, and severe pain complained of by the patient, the operation was not completed. On a second attempt ten days later, the body was removed, and to the astonishment of Dr. Goldschmidt proved to be a portion of a knife-blade, which portion was two inches seven lines in length, and seven lines in width at the widest part. The patient afterwards stated that in June, 1871, during a scuffle in an ale-house, he had received a wound on the right side of the neck just behind the ear. This wound bled freely at the time, and remained painful for some weeks. After the removal of this foreign body the movements of the head became free and painless, the profuse suppuration gradually diminished, and finally ceased, and the glandular enlargement and cicatricial thickening were slowly reduced.

BEELY ON THE HEMP AND GYPSUM SPLINT.—Dr. Beely, in the *Berliner Klinische Wochenschrift*, no. 14, 1875, directs attention to a new kind of splint, which during the past twelve months has been extensively used by Professor Schönborn, of Königsberg. The materials used in the composition of this splint are heckled hemp, the fibres of which must be arranged as parallel as possible, and gypsum powder, such as is used in the ordinary gypsum bandage. Bundles of the hemp, each of about the thickness of the little finger, and of a length corresponding to that of the part to be covered, are dipped in a mixture of gypsum and water, and then applied side by side over the surface of the limb, which surface should have been previously oiled or covered by flannel. These splints speedily become dry and form a hard casing, closely applied to the whole surface of the limb. They can be readily strengthened by the subsequent addition of other bundles of hemp saturated in the same way by gypsum and water, and may be rendered waterproof by painting over their surface an alcoholic solution of shellac. When it is necessary to apply a splint of this kind to the posterior surface of the leg or thigh, and the patient cannot turn over so as to place this surface uppermost, the bundles of hemp, after mixture with gypsum, should be kept in contact with the limb by means of a flannel bandage. The advantages which this is alleged to possess over other fixed splints of different composition are its cheapness, the facility of its application, its durability, its porosity, and the rapidity with which it becomes dry and firm. Dr. Beely thinks that it would prove a very useful application when a patient suffering from fracture or gunshot-wound has to be moved, and that gangrene would be less likely to occur than from the use of the ordinary gypsum splint. In Professor Schönborn's practice this form of splint has been applied in about fifty cases, and generally

with good results; the injuries and diseased conditions thus treated having been simple and compound fractures, articular affections, injuries to tendons, and deep wounds of soft parts in limbs, rachitic deformities and club-foot, and flat foot.

W. JOHNSON SMITH.

MATERIA MEDICA AND THERAPEUTICS.

DUJARDIN-BEAUMETZ AND BLACHE ON THE PART PLAYED BY THE PHOSPHATES IN THERAPEUTICS.—At the meeting of the Paris Société de Thérapeutique, on March 21, M. Dujardin-Beaumez presented a report (*Bulletin Général de Thérapeutique*, April 15, 1875) on an essay by Dr. René Blache, based on cases of albuminuria and diphtheria in which phosphate of lime seemed to have been of great value. M. Blache is of opinion that albuminuria and diphtheria are two cachectic conditions having this point in common, that the albumen would have a tendency to eliminate itself in both diseases either by the urine or the surface of the inflamed mucous membrane. The action of phosphate of lime would consist in favouring the assimilation and the passage of this albumen in the form of cells and fibres of all kinds, and would then oppose itself to its elimination. Without stopping to consider M. Blache's theory, M. Dujardin-Beaumez thus sets forth the state of the question of the influence of calcareous phosphates on the economy.

Owing to the progress of animal chemistry, it has been decided that all the constituent parts of the animal economy are composed of immediate principles, with which are sometimes associated mineral substances; these being alkaline phosphates (soda and potash) or earthy ones (lime and magnesia). As a result of these analyses certain laws have been established which it is important to know and which may thus be summarised. 1. In all the constituent parts of the animal economy, the bones excepted, the proportion of alkali (soda and potash) is always four times more considerable than that of the earthy parts (lime and magnesia). 2. In the fluid portion the soda predominates; in the solid parts, the potash. 3. In the liquid portions, the alkalies are in larger proportions than the phosphoric acid; whilst in the solid portions the phosphoric acid prevails over the alkalies. These laws once known, it was then thought that the phosphates, thus forming part of all the constituent substances of our economy, became bodies indispensable to our existence; and Choissat's experiments seemed to give warrant for this view of the case. Since then, experiments, taken up again by Kämmerich, Voit, and other experimenters, have shown that the action of the phosphates had been much exaggerated, and that, as a rule, they only played the part of simple aliments. M. Dujardin-Beaumez does not offer any decision on the question of the absolute necessity for phosphates. He thinks they are useful; but he asks himself, in the latter case, how may the dose of these phosphates be administered and increased? He then shows, by the precise experiments made in Germany, and of which M. Samson has given a very exact abstract (*Bulletin Gén. de Thérapeutique*, vol. lxxvii.), and by M. Chéry-Lestage's memoir (*Ibid.* vol. lxxvii.), that the only way of administer-

ing phosphates is to employ those which Nature has already assimilated—bran-bread, and beans of different kinds. Whenever it has been wished to augment the dose of phosphate, by adding soluble or insoluble phosphates to the food of animals, these phosphates have only passed through the economy without effecting any lodgment there. However, beneficial results seem to have been obtained from soluble phosphates in certain affections; and these successes M. Dujardin-Beaumetz explains by the precipitation of insoluble phosphates, as M. Mialhe demonstrated a long time since, and M. Cauler at a later period (*Bulletin Gén. de Thérapeutique*, vol. lxxvii.), and by the favourable action of hydrochloric and lactic acids on the digestion. As to the special cases pointed out by M. Blache, their explanation is rather to be found in the acid action of the soluble phosphates than in the phosphates themselves. Bright recommended acid treatment in chronic diseases of the kidneys a long time since.

CLARK ON FASHION IN MEDICINE.—Dr. Dongan Clark, in an address to the graduates of the Indiana Medical College, where he is Professor of Medicine (*Cincinnati Lancet and Observer*, April, 1875), says, 'Thirty years ago the lancet was used in perhaps nine cases out of every ten visited by the physician. To an equal proportion some preparation of mercury was administered. Now, I apprehend that the ratio is reversed, and that the physicians bleed and mercurialise no more than one in ten of their patients. Most of them, indeed, allow their blood-letting instruments to remain at home altogether, and grow rusty in total neglect. The human system will bear very considerable losses of blood with impunity—as is evinced in *post partum* and other hæmorrhages—and I do not presume to criticise with any severity the proceedings of our immediate forefathers in the profession. Very few persons were actually bled to death by physicians, even in the days when phlebotomy was most prevalent; yet it can scarcely be otherwise than true that more harm than good resulted from this indiscriminate depletion. A patient in Philadelphia was very ill of pneumonia; he was subjected to repeated and large venesections, and after several days the physician reported that he was cured of pneumonia, but was dead of debility. Whether death by debility is easier and better than death by pneumonia, I am not prepared to say. In our day, as already intimated, the lancet has fallen into almost total disuse. It may well be questioned whether, at the present time, the reaction against blood-letting is not too strong, and whether we are not allowing our patients to suffer from the too unfrequent, as they formerly suffered from the too frequent and excessive, employment of the lancet. As regards mercury, there can be no doubt that the generation of physicians immediately preceding our own employed it in excessive quantities, and sometimes to the injury of their patients. The injuries so produced have inspired the public mind with a prejudice against the drug; a prejudice so strong, indeed, that many patients now will steadfastly resist its administration even in cases where it would do them immense benefit. Mercury, like alcohol, has undoubtedly its legitimate use as well as its abuse; and every one of you has met with cases in which it could not be effectually substituted by any other drug in the pharmacopœia. Yet of an equal number of persons who have taken calomel and lobelia respectively,

a much greater proportion have perished from the latter drug than the former. If one has slain its thousands, the other has slain its tens of thousands. In hundreds of homes in Indiana lobelia is kept as a domestic remedy, and administered, without fear and without the advice of a physician, by good mothers to their sick children; while the same mothers would dread to administer a dose of calomel, even by a physician's direction, as they would dread a serpent's bite.'

WADE ON BROMHYDRIC ACID.—In the *Peninsular Journal of Medicine*, February, 1875, Dr. De Witt C. Wade gives an account of the uses of this agent and his mode of preparation. He commences by saying that in many cases we introduce a salt into the body in order that its acid may be set free in the stomach. Thus we give iodide of potassium to introduce iodine into the system. If iodide of potassium were as stable a salt as chloride of sodium, it would surely be prescribed, and never, intelligently, for the purpose of realising the specific effects of iodine. But as long as iodide of potassium is decomposed and the iodine liberated, why not continue to use it? Because it is unscientific to make unnecessary use of the stomach as a chemical laboratory when we know that its operations are variable, especially during sickness; because we never know how much of the halogen is liberated, and as a consequence we will either have an excess of it or of the salt; because if we have any way to know how much of the halogen will be necessary to affect our patient as we desire, it is unscientific to give more or less; at least we consider it so with most drugs, because if the salt is absorbed and eliminated without decomposition, as may occur in some conditions, the result will be a disappointment that will be very mysterious to most practitioners. The effect of bromhydric acid is to modify the cerebral action of quinine and morphia. In cases where they cannot be tolerated alone in such combination they act very beneficially. In some respects, however, effects may be expected from the acid that are not obtained with the bromides. For instance, it appears to affect the stomach similarly to the other mineral acids—increasing the appetite, aiding digestion, and acting as a general tonic—therefore having a wide range of applicability. Bromine is known to be a powerful antiseptic, and its hydrogen acid, combined with quinia, cannot be too highly extolled in septicæmia. The acid is a grateful refrigerant and sedative, administered with syrup in fevers, with which, among other combinations, may be made the bibromide of mercury as an alternative. In fact, the acid alone is a powerful alternative. The ordinary method of preparation produces an article expensive to make and liable to spoil by keeping. Dr. Wade's plan is as follows. One equivalent of bromide of potassium, two equivalents of tartaric acid, and only sufficient water to dissolve each. Mix the solutions and let it stand in ice-water twelve hours; decant and add water to make a fluid ounce for each eighty grains of bromine. The bitartrate of potassium resulting is but slightly soluble, and is an impurity that does not in any way affect the therapeutic properties of the bromhydric acid. Thus prepared, bromhydric acid represents ten grains of bromine to each fluid drachm. It is of pale straw colour, and very acid. The medium dose is half a drachm, well diluted.

J. MILNER FOTHERGILL, M.D.

RECENT PAPERS.

- Sulphide of Calcium in Scrofulous Abscesses and Boils. By Dr. Curtis Smith. (*The Clinic*, March 27, 1875.)
- History of Drugs. By Professor Sée. (*Le Mouvement Médical*, April 3 and 17.)
- On certain Peculiarities of Action of Aconite and Opium, with some general Observations on the Treatment of Narcotic Poisoning. By Dr. Ellis Blake. (*New York Medical Journal*, April, 1875.)
- The Physiological Action of Thebain. By Dr. Ott. (*Boston Medical and Surgical Journal*, April 8.)

OBSTETRICS AND GYNÆCOLOGY.

MARTIN ON A CASE OF RICKETY OBLIQUELY CONTRACTED PELVIS, THE RESULT OF SUPPURATION OF THE BODIES OF THE LOWER LUMBAR VERTEBRÆ: CÆSAREAN SECTION.—At the meeting of the Gynæcological Society of Berlin, on October 6, 1874 (*Berliner Klinische Wochenschrift*, no. 51), Dr. E. Martin brought forward a case which occurred in a woman, aged thirty, who had been ill when two years old, and from between the ages of eight and fourteen had suffered from an 'open wound' opposite the left sacro-iliac articulation, from which there was removed, on three occasions, large splinters of bone. With the appearance of menstruation the wound closed, and she remained healthy but weak. The contraction of the pelvis was great, with a very narrow and straight pubic arch. The transverse diameter at the outlet measured only 4 centimètres (1·4 inches). The external measurements of the pelvis are given—not the internal. The external conjugate diameter was only 21 centimètres (8·2 inches) and the entire circumference was only 77 centimètres (30½ inches). The head presented, but on the rupture of the membranes a hand could be readily felt). The labour began at 3 P.M. At 10 P.M. the pains being good, with the anterior lip swollen, and the foetal heart-sounds being still distinct, Cæsarean section was performed. An incision, 11 or 12 centimètres (about 4·7 or 4·8 inches) long, was made in the linea alba, extending to the left of the navel for about 0·8 inch above it. Hæmorrhage was slight, but became profuse on the uterine incision striking the margin of the placenta. An incision about 11 centimètres (4·6 inches) long was made in the uterine walls, purposely more towards the fundus than the cervix. The child was extracted breech foremost, in order to prevent any laceration of the uterus towards the cervix; a small rent did take place at the fundal end of the incision. The foetus was removed without any difficulty. The child weighed 3,180 grammes (7 lbs.), and measured 49 centimètres (about 19½ inches). After rapid removal of the placenta, the hæmorrhage from the uterine wound, which was rather profuse, was easily stopped by means of fourteen catgut sutures. The abdominal cavity was most carefully cleaned out with prepared sponges. The abdominal walls were closed with iron wire sutures, which were passed through the peritoneum, short strips of adhesive plaster were applied between them. A compress soaked in a solution of carbolic acid (1 per cent.) was laid on the wound, and over this cold water, but later on ice-cold applications. The progress of the puerperium was not a particularly disturbed one. The sutures were in part removed on the twelfth and in part on the fourteenth day. She got up on the seventeenth day and left

the hospital on the twentieth; when seen three weeks afterwards, she was perfectly well.

Dr. Martin added the following critical remarks to this communication.

1. He extracted the breech, which was lying at the fundus, first of all, because he had found from experience that the not unfrequently laborious removal of the head, situated at or in the lower segment of the uterus, easily leads to a lateral rent in its thin muscular walls. A tear in this situation is, on account of the ascent of the abdominal walls during the latter period of gestation, more difficult of closure than one at the fundus; and the danger of secondary hæmorrhage (perhaps with consecutive suppuration) is great.

2. In dangerous hæmorrhage from the uterine wound, where cold compression, etc., do not succeed in arresting it, the most reliable means is suture, for which catgut is the most suitable material. It admits the possibility of absorption, whilst the author has seen, for example, silk sutures apparently eliminated by the rectum with signs of irritation. Catgut has its drawbacks, besides its tendency to break. In one case of Cæsarean section, the suture in the uterus became untied; in another of ovariectomy, the pedicle slipped out of the catgut noose; and in both the results were fatal.

3. The peritoneal cavity should be cleansed with the greatest care by unused sponges. The neglect of this precaution can not with certainty be retrieved either by supplementary suction of the abdominal cavity, although in some cases of ovariectomy this has succeeded admirably, or by drainage into the vagina through Douglas's pouch.

4. Great weight was laid upon the after-treatment, especially the attendance and the withholding of food and drink at first, and the application of remedies only when there is a definite indication for their use (for example, hypodermic injections of morphia). The external wound is treated with compresses of 1 per cent. of carbolic acid lotion, then with cold compresses. The ice-bag is rarely applied. Any artificial means for an early emptying of the bowels is not required. [Sir James Simpson always advised the abstraction of the arm and head first, on account of the danger to the life of the child from grasping of the child's neck through contraction of the uterus.—*Rep.*]

CASANOVA ON THE EXCITATORY ACTION OF THE DISULPHATE OF QUININE ON THE MUSCULAR FIBRES OF THE UTERUS.—The following is an abstract of two letters from Dr. P. Casanova to Dr. Rossolo Griffini, which appeared in the *Annali Universali di Medicina* for November, 1874. The observations he considered of interest, as bearing upon the doctrine of Dr. Monteverdi.

B. M., aged twenty-three, strong, had for five months been suffering from a kind of intermittent fever of the quotidian type, for which she had employed no remedies. She was first seen on February 12, 1874. A careful examination showed all the functions normal; no disease except a slight hepatico-splenic engorgement, accompanied with a certain amount of pain. A saline purgative was given, to prepare the system for the reception of quinine, of which latter drug one gramme (15½ grains) was ordered to be taken during the next two days, with the daily use of a decoction of taraxacum. The fever remained the same. Fearing lest there should be a disturbance of the regular course of menstruation, of which the

epoch was at hand, and believing that the flow would diminish or suppress the hepatico-splenic engorgement, Dr. Casanova resolved to delay applying leeches to the anus, as he had first intended to do, and gave small doses of quinine with sulphite of soda. Menstruation was, however, normal, and had no effect on the spleen and liver. The powders caused frequent nausea and alvine dejections, without at all changing the febrile state of the patient. Eight leeches were directed to be applied to the anus, which caused a free flow of blood, with the effect of removing the hepatico-splenic complication. A gramme and a half (23 grains) of quinine was divided into sixteen pills, with extract of cinchona, to be taken in four days. On the third day, after the patient had taken eight pills, the catamenia re-appeared in normal quantity. The pills were continued. On the fourth day Dr. Casanova was suddenly summoned for an alarming menorrhagia, the woman having lost more in a few hours than she usually did during the whole period. The pulse was thready, and she had vertigo and was faint. Ice externally, and ergot and rhatany internally, were ordered; but it was found the next day that the loss of blood had ceased almost instantaneously without the use of any of these remedies. The four remaining pills were ordered to be taken, and seven and a half grains of quinine, divided into eight pills, to be taken in two days. The fever entirely left her, and the patient quite recovered.

Two principal considerations arise out of the preceding case.

1. The disulphate of quinine has neither any hæmostatic properties nor any stimulating effect upon the uterus, because the metrorrhagia showed itself after the patient had taken nearly seventeen grains. 2. If in the present case the patient had not been treated for ague, but on the contrary, had been treated by quinine for the first time, immediately after the metrorrhagia, this remedy would have had all the honours of the cure, and it would not have been thought to be spontaneous and natural.

Being sceptical of Monteverdi's theory of the action of quinine as a hæmostatic and uterine excitant, Dr. Casanova has carefully noted any cases bearing upon the subject; the following is a second instance tending to prove the fallacy of the theory.

Madame G. S., aged fifty, delicate, commenced to menstruate late, the discharge being at first scanty. Afterwards the catamenia became regular and abundant. In March (the author is writing in November), they became profuse, and lasted twenty days, followed by a continuous and excessive leucorrhœa, alternating with a bloody discharge that only ceased with the menstrual flow, which was very profuse. This condition continued without improvement until July, when Dr. Casanova was called in. Fifteen and a half grains of quinine were given in a dozen pills with extract of taraxacum. The pains and hæmorrhage diminished the same night, after taking only four pills; the other six pills on the next day entirely removed every ache, and stopped the hæmorrhage, and the patient was completely restored to health. No other remedy, not even a change in the patient's habits and mode of life, could be considered as contributing to the cure, which was permanent. Here the cure must be regarded as exclusively due to the quinine; the promptitude of its action and its efficacy being perfectly marvellous to the patient herself.

W. C. GRIGG, M.D.

NETTER ON THE APPLICATION OF THE PRACTICE OF OVARIOTOMISTS TO PUERPERAL PERITONITIS.—Dr. Netter (*Revue Médicale de l'Est*, Feb. 15, 1875), says that this problem must be solved by three considerations, moral, scientific, and therapeutic.

Moral Considerations.—Has a medical man the right, in a case of puerperal peritonitis, to practice incision, an operation without precedent and condemned by tradition—the latter, however, being confronted by the facts in cases of ovariectomy? Is it not the duty of every medical man to fight against disease even unto the death-struggle? He supposes two neighbouring wards of a hospital, one filled with cases for ovariectomy, and the other with puerperal peritonitis, and contrasts the mortality in the one and the other, and also the treatment; the treatment adopted saving many grave cases after ovariectomy, as recorded by Spencer Wells, Sims, etc., and the ordinary method of treatment saving few cases of puerperal peritonitis.

If the first case in which we try the injections be fatal, are we to reproach ourselves? Rather let us consider how we must reproach ourselves for all those whom we have allowed to die if this becomes, as he believes it will, the recognised treatment.

Scientific Considerations.—Ovariectomists work by constantappings and injections, placing drainage-tubes in Douglas's space, etc., and obtain marvellous and rapid results from thus getting rid of the peritoneal effusion. The theory on which these plans of treatment are based is, that the absorption of these fluids causes septicæmia. Dr. Netter does not believe in septicæmia, but considers that the effusion acts as a local irritant poison; and he supports his opinion by quoting from Sims, how the fluid stings the fingers of the operator, and how immediate is the amelioration in the fever, etc., when injection is practiced. He points out that the fluid is often *post mortem*, the only indication of the cause of death, and that the ordinary signs of peritonitis are absent. The fluids act as local irritants, not by absorption; witness the gastric, nervous, and reflex phenomena with the pyrexia. His conclusions are the following.

1. The septicæmia of ovariectomists as a cause of death is a delusion.

2. Their practice founded on this false theory might be simplified.

3. The injection of an abundant quantity of warm water to dilute and render harmless the poison is alone required.

He states that Nussbaum has found that the injections during the first few hours are those which do good; after this the fluid effused is diluted and less irritating.

Applying what has been said to the case in point, puerperal fever, he quotes Velpeau on the irritating and acrid nature of the lochia and other fluids; and Cruveilhier to show that absorption is usually through the lymphatics, and rarely through the veins direct into the blood, and giving rise to deposits in the lungs and liver; when through the lymphatics, the dangerous materials are stopped in the glands. Hence we have not to contend with a constant supply of poison, but only with the immediate effects of the first effusion into the peritoneum.

Therapeutic Considerations.—When trying new remedies we should feel or grope our way along. The indication is to get the water into the peritoneal cavity. This may be done by direct incision or by

two indirect methods, by absorption or by injection into the veins. The first he would attain by injecting the water into the uterus in such a way that, while it washed out the discharges, a constant supply was held in the fundus. He does not see why injection into the veins should not be tried here as well as in cholera. Whichever of these plans is tried, percussion of the abdomen is to be practised, to find when the desired result is obtained.

With regard to direct injection, he does not think the adhesions are as solid during life as they are twenty-four hours later, when the *post mortem* examination is made; and in many cases they are absent.

He would have each of these methods tried during an epidemic, with the double view of curing the patients and throwing light on the nature of the malady.

Experience must teach us how to proceed in various cases, and how to supplement the injection, where necessary, by draining, more extended incisions, etc. Surgical intervention should be practised at the moment of invasion, so as to prevent adhesions from forming.

J. KNOWSLEY THORNTON.

RECENT PAPERS.

Vascular Polypiform Hypertrophy of the Lips of the Neck of the Uterus. By M. Stoltz. (*Revue Méd. de l'Est*, April 1.)

On Fissure of the Neck of the Bladder; with Remarks on Rapid Dilatation of the Urethra in the Female. By Professor Spiegelberg. (*Berliner Klinische Wochenschrift*, April 19.)

TOXICOLOGY.

WILL AND CHARTERIS ON CHLORAL AS AN ANTIDOTE TO STRYCHNIA.—The *British Medical Journal* for January 23 contained a report by Dr. Hughes Bennett, on behalf of the committee appointed by the British Medical Association to investigate the antagonism of medicines, in which it was shown that in the lower animals chloral acts as an antidote to poisonous doses of strychnia. Dr. Ogilvie Will, of Aberdeen, records, in the *Edinburgh Medical Journal* for April, an opportunity which he lately had of demonstrating that this fact is true also of the human subject.

A druggist's apprentice, aged eighteen, swallowed, with suicidal intent, a quantity of pure strychnia. The lad thought he had taken five or six grains—'certainly not less than four'—but the exact amount could not be ascertained as he had emptied it out of a bottle at haphazard; but from the rapidity with which the symptoms appeared—only a few minutes after swallowing the poison—and, from their severity, it was evident that the dose must have been a large one.

Medical assistance was quickly obtained; and when Dr. Will saw the patient, an emetic had been given and other attempts made to induce vomiting, but without success; violent attacks of convulsions had already commenced, recurring at intervals of about five minutes; often several fits would occur in succession with only a minute or two between each. Dr. Will at once sent for some chloral; but whilst this was being procured the fits rapidly increased in severity and in duration, and when it arrived the patient appeared actually moribund—as if he could not live many minutes. Thirty grains of chloral

were at once administered by the mouth, and 'in a very few minutes the good effects began to manifest themselves—the intervals between the spasms became longer and the spasms themselves lessened in severity.' Another thirty grains were then injected under the skin, and almost immediately afterwards a further change for the better was observed. Later in the afternoon, however—the poison having been taken a little before 2 P.M.—the fits again began to increase gradually in frequency and intensity; accordingly at 5 P.M. thirty grains of chloral were again given by the mouth, and at 6.30 fifteen grains were injected hypodermically. After this the fits subsided; occasional twitchings continued for a few hours; these ceased during the night, and next day the patient was convalescent.

Dr. Charteris, of Glasgow, reports a very similar case in the *Lancet* for April 10. In this instance the patient, a very strong, healthy man, aged thirty-nine, deliberately swallowed the contents of two sixpenny packets of 'Gibson's Vermin-Killer' mixed with whisky and ginger-beer, each packet containing fully two grains of strychnia. The poison was taken at about 11.30 A.M., soon after a very substantial meal of ham and eggs, etc., and the symptoms came on very slowly and gradually. It was not till 3.30 P.M. that he was brought to the Royal Infirmary; violent attacks of convulsions were then occurring about every ten minutes. The stomach-pump was used but the fits continued to increase in severity and frequency until 4.50, when ten grains of chloral were given, and the dose was cautiously repeated at intervals of about twenty minutes. There was little change until forty grains had been given, but then the improvement was rapid and marked; the spasms subsided into mere muscular twitches, and the patient became calmer. The chloral was now given at gradually longer intervals; about 3 A.M. the spasms ceased altogether, and the patient complained only of aching and soreness in the muscles. He recovered completely in three or four days.

J. W. LANGMORE, M.D.

REVIEW.

Manual of Public Health for Ireland. By DRS. T. W. GRIMSHAW and J. W. MOORE, PROFESSOR J. E. REYNOLDS and R. O'B. FURLONG, Esq., Barrister-at-Law. Dublin: Fannin & Co. London: Longmans, Green & Co. 1875.

This compact little manual has been compiled to meet the wants of the officers of health for Ireland, and explains the duties imposed upon them by the Act of 1874, in preparing the enactments of which use was made of the valuable system of dispensary service peculiar to Ireland. The machinery provided by the existence of this system ought to render the Act comparatively easy of application, the dispensary medical officers being appointed health officers for their own districts, subject, of course, to the superintendence of specially appointed inspectors of approved competence. The present work is the joint labour of Drs. Grimshaw and J. W. Moore, both diplomates in state medicine of the University of Dublin, whilst the chemical part has been intrusted to Professor Reynolds and the legal part to Mr. R. O'B. Furlong, barrister-at-law. It is a difficult matter to compress the wide range of subjects required for officers of health into the space

of little over 300 pages of a duodecimo volume, but the task has been, on the whole, well accomplished, although there is still undoubted room for improvement. The earlier chapters are devoted to an analysis of the various acts, under which the sanitary officers are to work, and contain a summary of their provisions and a good index to the leading points in the appendix. Also there is a list of the chief towns and boroughs, and the sanitary districts of Ireland. Following on these is a section on statistics, which contains much useful information. Then come chapters on preventable diseases, treating in the first place of zymotics, among which we are glad to perceive that the authors reject the so-called simple (or common) continued fever as a special fever apart from true typhus, enteric, or relapsing. They give a short but instructive table, showing that it nearly always prevails in conjunction with one of the other forms; thus, from the records of the Cork Street Hospital, of forty-two houses furnishing more than five cases of fevers each:

13	houses	furnished	cases	of	three	kinds	of	fever.
19	"	"	"	"	simple	fever	and	typhus.
4	"	"	"	"	simple	fever	and	enteric.
4	"	"	"	"	typhus	and	enteric.	
2	"	"	"	"	simple	fever	only.	
0	"	"	"	"	typhus	only.		
0	"	"	"	"	enteric	only.		

19 houses furnishing typhus furnished also simple fever.

It is to be hoped that in time this vague disease will disappear from our returns as diagnosis becomes more accurate. We gather, however, that the authors believe that typhus may be generated *de novo* from simple overcrowding, a thesis which is, to say the least, doubtful, although it must be admitted that after the direct communication of the poison, crowding is the most powerful factor in its propagation. There is certainly one peculiarity about typhus, which has been noticed by many observers, and lately brought out very strongly by Guillemin, namely, that a certain amount of the poison is necessary for its manifestation, hence the importance of crowding as a factor; in some other diseases usually accepted as communicable, an apparently minute quantity of poison is sufficient; in short, quantity rather than quality appears to govern the propagation of typhus. Under the head of erysipelatous affections the authors refer to the vexed questions of hospitalism, and point out from the recent experience of the Rotunda Hospital at Dublin, that extreme and scrupulous care in sanitary measures has practically reduced puerperal fever to a minimum, and quite abolished *trismus nascentium*. This bears out the view held by some competent observers that where sanitary precautions are rigidly carried out there is no reason why large buildings should not be quite as healthy as small ones. Some instructive statistics are given with regard to the influence of vaccination from the experience of the Irish hospitals. In the chapters on diseases arising from food, constitutional diseases, and the diseases of artisans, there are some interesting remarks; but in the last, lead, arsenic and mercury are said to be the only mineral poisons likely to affect the artisan; but surely both phosphorus and potassium bichromate are sufficiently poisonous and affect a considerable number, and the list might be extended. In the chapter on diseases arising from vicious habits there are some very sensible remarks, and we cordially endorse the statement that 'comfortable dwellings will do more

to promote sobriety than any amount of legislation or teetotal agitation.' No reference is made to the growing use of narcotics, but perhaps the habit may not be so constant in Ireland as it is in England, where opium especially is very largely used among the lower classes, particularly in the low lying and swampy districts; perhaps the non-malarious character of the Irish peat-bogs (referred to at p. 174) may account for this, supposing our surmise to be correct. The authors support the Contagious Diseases Acts, and call for their application to the civil population. Food and its adulterations are treated of, as well as the questions of ventilation, examination of air, water analysis and supply, and sewage disposal; these are followed by chapters on contagion and disinfection, and hospital construction. It is always a difficult matter to lay down rules for chemical examination when space is limited, and the scientific knowledge and experience of those for whom the instruction is intended are limited also; there is a risk on the one hand of going beyond the capabilities and opportunities of the reader, and on the other of being too brief and bald, and not sufficiently explicit. The present work gives processes which are in several cases too complicated for an ordinary health officer whose time is much occupied, and whose appliances are few, whilst it does not go far enough to be of real value to a professional analyst. This, however, is a matter of less importance comparatively, as so many good works exist in this branch of knowledge. The closing chapters treat of meteorology, and the influence of climate and season in disease, in which is brought together a good deal of useful and interesting information, and the appendix contains a convenient list of apparatus and chemicals, as well as the tables most generally required for the reading of meteorological instruments and keeping weather records.

MISCELLANY.

M. WURTZ has given in his resignation as Dean of the Faculty of Medicine in Paris; his successor is not yet appointed.

THE names of the fifteen candidates for the Fellowship selected by the Council of the Royal Society to be recommended for election at the meeting on June 3 are W. Archer, J. R. Bennett, D. Brandis, J. Caird, J. Casey, A. Dupré, J. Geikie, J. W. L. Glaisher, J. B. N. Hennessey, E. Klein, E. Ray Lankester, Captain Nares, R. S. Newall, W. C. Roberts, and Major-General Scott.

DISEASE IN THE COFFEE-PLANT.—A disease in the coffee-plant at Ceylon has lately been discovered which threatens scarcity of this product unless speedily checked. It is called 'leaf-disease,' and, as its name implies, is principally apparent in the death of foliage, though the produce of the berries is also considerably reduced. It is believed by competent authorities to be mainly caused by exhaustion. The Government of Ceylon have taken up the subject with a view to its thorough investigation.

THE Royal Society during the present session have elected the following nine foreign members:—Pierre J. van Beneden, of Louvain; Joseph Louis François Bertrand, of Paris; Alfred Louis Olivier Des Cloizeaux, of Paris; Hippolyte Louis Fizeau, of Paris; Elias Magnus Fries, of Upsal; Jules Janssen, of Paris; Auguste Kekulé, of Bonn; Gustav Robert Kirchhoff, of Berlin; and C. Ludwig, of Leipsic. The Earl of Carnarvon, Mr. W. E. Forster, and Sir Stafford Northcote have also been elected Fellows of the Society.

THE CAUSE OF THE LATE AERONAUTIC FATALITY.—At the last meeting of the Paris Academy of Sciences, M. Cohn stated that the cause of the deaths of MM. Croce-Spinelli and Sivel was unquestionably owing to the sudden diminution of atmospheric pressure. It is also to be noted that the two aeronauts who died had taken food before the ascent, whilst M. Tissandier was fasting. MM. Croce-Spinelli and Sivel, under the influence of this sudden diminution of atmospheric pressure, underwent what occurs in animals attacked by gaseous indigestion; that is to say, that the production of the gas, by driving back and distending the diaphragm, paralyses the action of that muscle, whence asphyxia results. M. Cohn thence infers that the best advice to give to aeronauts is to take no food before the ascent, or to take alcoholic liquors in place of solid food, as they do not give rise to gaseous fermentation, and are favourable to calorification, whilst they furnish a means of resistance to lowerings of the temperature of the upper regions of the atmosphere. M. Cohn differs from M. Paul Bert, who believes that it was the want of oxygen which caused the death of the aeronauts, and ascribes it solely to the sudden diminution of atmospheric pressure.

THE COLORADO BEETLE.—Dr. Kalender, of Linderhöhe, near Cologne, gives a long account, in the *Kölnische Zeitung*, of the new enemy to the potato which has caused much ravage in the potato plantations of the United States, namely, the Colorado beetle (*Doryphora decemlineata*). Dr. Kalender applied to the Prussian Minister for Agriculture, and obtained the most reliable information, which is based upon a report of Mr. C. Riley, in the annual report on the noxious, beneficial, and other insects in the State of Missouri. It appears that the insect passes the winter in the ground, but, as soon as the potato-plants have developed their first shoots, the beetle shows itself. The females then deposit their orange-coloured ova, in lumps of ten to twelve, upon the under surfaces of the leaves; the larvæ appear after five to eight days, and begin their destructive work, which lasts two or three weeks, after which period they transform into nymphæ; ten to fourteen days later the young beetles appear; thus one summer can see three or four generations, of which the last one passes the winter in the ground. The insect does not confine its devastations to the potato, but has also been found to attack the young shoots and leaves of *Cirsium lanceolatum*, *Anaranthus retroflexus*, *Sisymbrium officinale*, *Polygonum hydropiper*, *Solanum nigrum*, *Chenopodium hybridum* and *album*, and even of *Hyoscyamus niger*. This variety of plants shows that the insect has great powers of adapting itself to its food, and to this must be ascribed the fact that it can only with the greatest difficulty be got rid of. The home of the insect was in the Rocky Mountains; with the westward progress of agriculture the cultivation of the potato approached the birth-place of the insect, and it transferred its dwelling to the potato fields, which of course were welcome food; thus in a short time it became a general plague. In 1859 it began its eastward progress, and has now reached the coast of the Atlantic; whether it will cross this ocean and begin its devastations in Ireland remains to be seen; much may, however, be done to prevent its appearance in Europe. The means used for its destruction are various; the most successful one has been the so-called Schweinfurt green (arseno-acetate of copper). This is mixed with flour and water, and the plants are sprinkled with the mixture. Although highly poisonous to animal life, the Schweinfurt green does not poison the soil, as it is perfectly insoluble in water, and the destruction of the noxious insect is almost complete.

ABSINTHE.—In the Cantor Lectures lately delivered by Dr. Richardson at the Society of Arts, he remarked that, as this drink is now sold in this country, and the consumption is on the increase, a clear description of the evils resulting from its use may be disseminated with advantage. He states that absinthe is peculiarly formidable. In this liquor five drachms of the essence of absinthum,

or wormwood, are added to 100 quarts of alcohol. Thus the liquor is not only very strong as a mere alcoholic drink, but it is charged with another agent which has been discovered to exert the most powerful and dangerous action upon the nervous functions. The essence of absinthum in doses of from thirty to fifty grains produces, in dogs and rabbits, signs of extreme terror and trembling, followed by stupor and insensibility. In larger doses it causes epileptiform convulsions, foaming at the mouth, and stertor of the breathing. Its effects, as they occur from the taking of it in the form of absinthe in man, have been most ably described to Dr. Richardson by one who indulged in it until it induced in him the peculiar epileptiform seizure. He described the effects as resembling those produced by hashish, the narcotic of the East, which has been known for so many ages as the nepenthes of Homer, and which owes its properties to extract of Indian hemp or *Cannabis Indica*. The partial insensibility caused by the absinthe is attended with the ideal existence of long intervals of time, in which the events of a whole life are arrayed and appreciated, to be succeeded by terrific hallucinations and intellectual weakness, ending in unconscious struggling as if for life. In time, if the use of the absinthe be continued, these phenomena become permanently established, and the result is inevitably fatal. The doubly poisonous absinthe is made the more seductive to its victims by the fact that it excites a morbid craving for food which is never felt except when it is tempted by the destroying agent. Indeed, such are the terrible consequences incident to this agent, that Dr. Richardson agrees with Dr. Decaisne in maintaining that it ought, by legal provision, to be forbidden as an article for human consumption in all civilised communities. Even in small quantities taken daily, say one or two wine-glassfuls, it causes quickly a permanent dyspepsia, and, what is of still more consequence, it tempts its victims on and on, so that they cannot take food until absinthe has prompted the desire for it, by which time they are too often hopelessly and mortally in its power.

IT is a well-known fact that the most eminent members of the medical profession have unequivocally pronounced against the use of gas, as injurious to both health and sight. It is therefore recommended that for purposes of daylight Chappuis' Patent Reflectors should be adopted. Particulars of the invention may be obtained at 69 Fleet Street, London.—[ADVT.]

NOTICE.

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The London Medical Record.

WEDNESDAY, MAY 5, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

CLINICAL REMARKS ON DIPHTHERIA. BY DR. HENOCH, CLINICAL PROFESSOR IN THE CHARITÉ HOSPITAL, BERLIN.*

The subject of diphtheria has already on repeated occasions been discussed in this society; and if, notwithstanding this, I again invite your attention to the consideration of some points relating to this disease, I believe that I am justified in doing so, on the one hand by the interest which we all have in this formidable malady, which has become endemic among us, and on the other hand, by the circumstance that it is still spreading more and more widely as an epidemic, and threatens to assume a rather destructive character in our city. I will not trouble you with a prolix introduction, but will confine myself to laying before you some points for discussion.

First, as to the anatomy of the disease; you all know that the diphtheritic exudation, or better, the diphtheritic process, is anatomically distinguished from the croupous, by the peculiarity, that in diphtheria the mucous membrane is infiltrated with the morbid elements, while in croup the deposit lies free on the membrane. We have, however, known for some time that in diphtheria both these forms are observed in one and the same individual; the infiltration, which we specially call diphtheritic, showing itself in the pharynx and as far down as below the epiglottis, and sometimes on the vocal cords; while further down, as far as the bronchial tubes, a loosely lying so-called croupous deposit appears. I will not here enter on the question of the cause of the difference—whether it depends on structural conditions of the various portions of mucous membrane, or on other conditions; I will only remark, that the difference does not absolutely hold good. In the writings of earlier competent authorities, *e.g.* in the great work of Rilliet and Barthez, you find it stated that the so-called ‘croupous’ membrane does not always lie quite loose; but that (as we may frequently convince ourselves by examination) it may be firmly connected by fine adhesions to the mucous membrane, and that it is not always easy simply to remove it as a tube. It is, indeed, expressly stated in one part of the work above referred to, that, especially in cases where there are only limited patches of exudation in the larynx and trachea, these are sometimes so firmly attached that, in the attempt to remove them by the forceps, a portion of the mucous membrane is at the same time torn away. I have had the opportunity of observing two cases of this kind in the Charité Hospital.

A girl, three years old, was admitted with diph-

theria and croup; she coughed up several tubes corresponding with the calibre of the trachea; and at last tracheotomy became necessary. During the operation no membrane was discharged, but only a bloody yellow mucus; she died the next day. At the *post mortem* examination, made by Herr Orth on January 15, 1874, there were found very abundant free croupous deposits, extending nearly to the bifurcation of the trachea; but a few centimètres above the bifurcation there commenced a very distinct yellow-grey infiltration of the tracheal mucous membrane, extending to the mucous membrane of the right bronchus and a little beyond. It was only by scratching with the scalpel that this mass could be removed from the air-tubes; and, in doing this, an evident loss of substance was left behind.

The second case occurred on January 25, 1875, in a boy with terminal diphtheria. Besides the well-known appearances in the pharynx, the whole mucous membrane of the trachea was infiltrated and of a yellowish white colour; a free deposit of croup-membrane was not to be perceived. Proof was in this case afforded that diphtheritic infiltration of the mucous membrane may take place below the vocal cords, an event which rarely occurs. I have put together twenty-one necropsies of cases of diphtheria made in my clinic; in sixteen of these there were only free croupous deposits below the vocal cords or lower down (the membrane extending deeply into the bronchial tubes in eight); while in only two cases were there free deposits and diphtheritic infiltration, or the latter alone. In two other cases there was only simple laryngo-tracheitis, with diphtheria of the pharynx; and in one no disease could be detected below the epiglottis.

It being proved that diphtheritic infiltration may take place below the vocal cords, it might be thought that the so-called croupous exudation might be met with in the pharynx also. In fact, it not rarely happens that the mass is not only infiltrated, but partly lies loose; and we met with such a case in a necropsy a few weeks ago. It was that of a boy whose malady began with a pseudo-croupal affection. I examined the pharynx, and found absolutely nothing more than an ordinary angina. At the end of two days complete croup was developed; tracheotomy was performed; but he died while it was being done. At the *post mortem* examination there was found a very distinct membranous deposit in the larynx, especially about the vocal cords and farther upwards, along with œdema of the ary-epiglottic ligaments. The tonsils were not much enlarged; but on section they presented in parts a yellowish-white infiltration, and were covered with a perfectly free and easily removable croupal membrane. My colleague, who made the necropsy, believed it to be a case of croup and not of diphtheria, an opinion which I cannot share. I believe that the imperishable services which pathological anatomy has rendered to medicine would be still greater, if anatomists had not too great a disposition to emancipate themselves from clinical observations. They would then be less likely to come into collision with self-imposed barriers. From a clinical point of view, the case to which I have just referred was, in my opinion, distinctly one of diphtheria. When I consider, that at the time diphtheria was of almost daily occurrence in my wards, arising from infection in the institution itself, and when in these circumstances I observe a case which clinically runs its course quite like all

* Read before the Berlin Medical Society, February 17, 1875. (*Berliner Klinische Wochenschrift*, April 26.)

other cases, the pharynx, however, showing a croupous exudation instead of the infiltrated mucous membrane generally met with, this anatomical variation does not seem to be one sufficient to remove the case from being one of numerous cases of diphtheria observed at the same time.

We will take this opportunity of making some remarks on the relation of croup to diphtheria. You are aware that croup, *i.e.*, the development of the peculiar croupous membrane in the larynx, was formerly described by many as an idiopathic disease. In the discussions which took place in this society some years ago, a diversity of opinion prevailed; our older members, whose experience extends a long time back, regarded the existence of a *primary* croup as fully established, while the younger portion of the society appeared to oppose this view, and to be desirous of regarding croup as of a diphtheritic character in all circumstances. This is connected with the fact, that the experience of the former extends to a time when diphtheria was met with very rarely or not at all. As far as my opinion goes, I must say that I fully recognise the existence of croup as a distinct disease. To this I will add, that mistakes may rather easily occur; and I would especially direct your attention to one which may arise from the fact, that the diphtheritic affection of the pharynx may have its seat in places where nothing is to be seen during life, while the most that we can make out is an angina, and where laryngeal croup suddenly sets in. Thus, for instance, cases occur in which only the posterior surface of the velum is affected with diphtheria, the anterior remaining quite free; or where the lowest part of the pharynx, close above the œsophagus, is attacked. Two such cases came under my notice in April, 1874. One was that of a little girl, a year old, who lay in my ward with whooping-cough, and consequent pneumonia. She was suddenly seized with symptoms of croup. The pharynx was carefully examined; we found the tonsils free, but were not quite sure whether there were whitish deposits behind in the pharynx. Tracheotomy was performed; and after death it was found that quite at the lowest part of the pharynx, where it passed into the œsophagus, there was a diphtheritic infiltration; besides this, the posterior surface of the velum was strongly infiltrated, while nothing was to be seen anteriorly. Another case was that of a boy, four years old, who also died after tracheotomy. The necropsy showed redness of the tonsils and of the pharynx; the tonsils were swollen. Quite at the lowest part of the pharynx, below the base of the tongue, near the epiglottis, there was a very distinct diphtheritic infiltration; and the process had extended from this part as far down as the middle-sized bronchi. There were also glandular swellings, parenchymatous nephritis, and swelling of Peyer's patches. A third case came under my notice in January, 1875. A tuberculous boy was attacked with aphonia, to which symptoms of dyspnoea were soon added. At the *post mortem* examination, diphtheritic infiltration was found below the base of the tongue around the epiglottis, but no where else; but at the same time there were all the signs of laryngeal croup. The last case occurred to me yesterday (February 16), in a child who was the subject of general tuberculosis and extensive peritonitis; and at last was attacked with diphtheria. The velum was free; the tonsils were only superficially ulcerated; the diphtheria was only developed quite at the lowest part of the pharynx; and further down in the larynx there was croup.

If such cases come under treatment, and nothing be seen on examination of the pharynx, and then croup suddenly set in, it is easy to regard the case as one of simple primary croup, since the preceding diphtheria in the pharynx has been overlooked. If any accuse us of neglect in not detecting the pharyngeal affection by the laryngoscope, I reply that, if this instrument could always be used, such a mistake would not easily occur. You all, however, know that it is only with difficulty that the laryngoscope can be successfully used in the case of children. Instances certainly occur, and we just now have one of the kind, where an inspection of the larynx of a boy five years old was quite successfully made, but not until the most important symptoms had passed off. In most cases, however, where the child is in a state of orthopnoea, grinds its teeth, and has a constant dribbling of saliva, you will not be able to use the laryngoscope at all, or at most very imperfectly; and I must consider the information deceptive which is believed to have been derived from its use.

Mistakes of the kind which I have described are especially liable to occur in children's hospitals; for it is one of the most frequent of occurrences that diphtheria suddenly attacks children who are convalescent or who are still suffering from other affections. How can we always recognise the diphtheria? The primary disease is so marked that the first indications of diphtheria are mostly overlooked, until symptoms of croup quite suddenly appear; this I have observed twice in children who on the previous day had been playing in the play-rooms. It would be necessary to make a daily examination of the pharynx of every child in the hospital—a measure which is far more easily recommended than carried out.

I am distinctly of opinion that there is a primary fibrinous croup, which has nothing in common with the infective disease designated diphtheria. Doubts to the contrary will indeed always be expressed on this point by sceptics, who say, 'we do not believe in such a croup, not even when absolutely no disease, is found in the pharynx on *post mortem* examination.' They usually support themselves with the assertion that it is not necessary that the diphtheria should always attack the pharynx, but that it may appear primarily in the larynx, the pharynx remaining quite free. I will not here examine whether there are or not any grounds for this opinion, because I believe that it is not correct. In proof of this existence of a primary croup, it is to be especially remembered that we have to find a disease which notoriously has a disposition to always produce a catarrh of the larynx and trachea. If under these circumstances, without any affection of the pharynx, croup is developed from a simple laryngeal catarrh, we may well maintain that it is only an aggravation of the catarrh, a 'plastic croup,' as was formerly said. Measles is a disease of this kind. We know that from the first it is always accompanied with catarrh of the larynx and trachea. If at an early period in the eruptive stage of measles this catarrh assume the croupous character, the pharynx remaining free, no one can well deny that it is a primary inflammatory croup, proceeding from a simple catarrh. I observed a case of this kind in a boy three years old, who was admitted in May 29, 1873, into the Charité, with measles in the stage of efflorescence. The eruption had just appeared on the face; the temperature in the evening was 104.9°, in the morning, 103°; and the characteristic laryngeal catarrh was so severe,

that I was obliged to consider whether there was real laryngitis. The cough was harsh and aphonic, the voice hoarse. By the most careful examination nothing further could be found than a simple angina, or rather the development of the exanthem in the mucous membrane of the throat and palate. Having learned from experience that this catarrh might very readily become aggravated, I adopted an active antiphlogistic treatment; applied leeches, gave tartarised antimony, and had the satisfaction of seeing all the symptoms remarkably relieved. On the 30th, the pulse had fallen from 150 to 116, the temperature to 101° , and the respiration from 44 to 32. The hoarseness, however, remained; when he coughed, some laryngeal sound could still be distinctly heard. In this way, four days passed without fever, while the laryngeal symptoms continued. Suddenly, on the evening of the fourth day (June 3) the temperature rose to $101^{\circ}3'$, and the next morning to $103^{\circ}1'$. From twelve o'clock at night there was complete croup, so that at midday, during the clinical visit, tracheotomy had to be performed. Through the opening in the trachea we were able to draw out a long cylinder, which extended as far as the bifurcation; and some shreds of membrane were afterwards coughed up. I believe that such cases prove beyond doubt that a complete croup may be developed from a catarrh; but I will add, that in our time genuine primary croup is in a considerable minority in comparison with the infectious diphtheritic malady.

Another remark that I have to make is on a sequela of diphtheria, namely, paralysis; and it is entirely of a therapeutic nature. It is known that recovery from diphtheritic paralysis frequently takes place spontaneously if we have the patience to wait for it; and further, that electricity is often used with advantage. The following cases are well calculated to prove that we may bring about a more rapid recovery if we do not leave it to Nature, but treat the malady with injections of strychnia. Both cases were observed by me in the polyclinic of the Charité.

Hedwig R., a girl eleven years old, came under notice on April 7, 1874, having suffered from diphtheria six weeks previously. For three weeks, there had been paralysis of the palate; the uvula and velum were perfectly motionless both in phonation and in inspiration; the voice was nasal; drink flowed from the nose; there was paralysis of accommodation of the eyes (she could not read, and had double vision at a distance); there was paralysis of the muscles of the back of the neck, so that the head was bent forward and could not be lifted backward. Besides these symptoms, there was also the remarkable phenomenon which I cannot explain, namely, that when the girl was directed to close her eyes, both eyelids were seized with a twitching vibratory movement, which ceased as soon as the eyes were opened. In other respects, nothing abnormal was to be observed. The patient had already taken quinine and iron without benefit. On April 7, I gave the first injection of two milligrammes (about $\frac{1}{30}$ th grain) of strychnia, and ordered the quinine and iron to be continued. On the 9th, a second injection was made; and on the 11th, she could hold up her head considerably better; a third injection was made. On the 13th, speech was essentially impaired; the movements of the velum were more distinctly visible, but reading was still impossible; a fourth injection was given. From the 17th, she could read; and on May 1 she was discharged com-

pletely cured. In all, one-fifth of a grain of strychnia was used. It is to be remarked, that the vibratory twitchings of the eyelids still continued after every other symptom had been removed, so that I am disposed to regard it as something purely accidental.

The second case was that of a boy, aged ten, who was admitted December 4, 1874. At the beginning of October he had an attack of diphtheria, by which he was confined to bed for a fortnight. He then returned to school; and immediately afterwards paralysis set in. Here, also, there were paralysis of the velum, discharge of fluids through the nose, nasal unintelligible speech, together with paralysis of the muscles of the nape, impossibility to read, and paresis of the lower limbs. The boy tottered in walking, especially in turning round, and showed distinct ataxic symptoms. On the 4th, I injected $\frac{1}{45}$ th of a grain of strychnia; and subsequently gave three other injections of $\frac{1}{30}$ th of a grain. On the 14th, walking and speech were already considerably improved. Under a continuance of the injections, the symptoms rapidly diminished, and after ten injections (about $\frac{1}{3}$ of a grain of strychnia in all being used) recovery was complete.

In both children, the injections were made in the nape of the neck. On no occasion was there any untoward symptoms. If it be objected that the cure was not produced by the strychnia, but rather was spontaneous, I would remark that no one who observed the rapidity with which the recovery took place could doubt the therapeutic action of the injections. I had at first some hesitation in trying these injections on children; but the experience of Demme, the director of the Children's Hospital at Berne, who praises strychnia as a remedy in infantile paralysis, put me at ease. Since then I have used strychnine injections in children in a rather large number of cases, not only for paralysis, but for prolapsus ani; and my experience agrees with that of Demme, that, if proper care be taken, there is no fear of mischievous results at this age. But that not only a non-injurious but a distinctly good action may follow is proved by my cases, supported as they are by the observations of Dr. Acker of Erlangen (see the *Deutsche Archiv für Klinische Medicin* of last year) which, however, were indeed not made on children but on grown persons.

A. HENRY, M.D.

VULPIAN'S EXPERIMENTAL PATHOLOGICAL STUDIES ON THE PHYSIOLOGICAL ACTION OF TOXIC AND MEDICINAL SUBSTANCES.

M. Vulpian is now delivering a course of lectures at the Paris Faculté de Médecine on the above subjects. In the first lecture, reported in *Le Progrès Médical*, April 3, he investigates the meaning of the expression physiological action of poisons and drugs, points out the importance of this knowledge from the therapeutical and physiological point of view, and indicates the method to be adopted in the investigation of this physiological action. He continues by observing that it is scarcely necessary to define what should be understood by the words drugs and poisons. Drugs are substances which are administered either with the object of restoring functions disturbed by disease to the normal condition, or of curing lesions which may have attacked the various tissues and organs. Poisons are chemical substances which, when introduced into the animal

organism, may produce lesions or serious functional disorders threatening life. M. Vulpian here defines the difference between viruses and venoms. Viruses, according to him, are albuminoid substances, originating in organic matter, either during life, or as a consequence of the decomposition of matter (cadaveric virus), and which, when they enter the circulation of a living person, also bring on serious morbid troubles; generally mortal in some cases, in others invariably so, as in the case of the virus of rabies.

Viruses differ from poisons, not only in their constitution, but also in other very important characteristics. Thus, whilst the action of poisons is, in a general way, of an intensity in proportion to the dose absorbed, there does not appear to be a very exact relation between the quantity of the virus introduced into the circulation, and the violence of the effects produced by these substances. On the other hand, viruses do not, like poisons, produce an immediate effect; they only act after a certain period of time, called a period of incubation. Venoms resemble poisons much more closely than viruses. They differ from poisons principally in their production; being, in fact, products of glandular secretion. Chemical substances, comparable to those of poisons, have not been extracted from them; but like the latter, they produce immediate effects proportional to the amount of the substance absorbed. Certain venoms cause absolutely similar effects to those produced by certain poisons. Thus the venom of the frog acts on the heart like digitalis; the venom of the triton, or water-salamander, also has the same action. A large number of toxic agents are employed as drugs; that is to say, either applied externally, or administered internally to produce a remedial effect.

There is no defined boundary between a medicine and a poison; a medicine may become a poison if taken in large doses, and reciprocally, a poison may act as a medicine if given in small doses. Phosphorus, arsenic, mercury, opium, belladonna, sulphate of quinine, may be instanced as substances which will act either as medicines or as poisons, according to the dose taken.

M. Vulpian then proceeds to state his intention of studying the effects of a certain number of toxic and medicinal substances, taking them as types and determining their physiological action. The physiological action of a poison or a drug will be distinguished from the effects produced by it, these effects being lesions or functional troubles produced by the influence of these substances on the organism. He takes the physiological action of toxic substances and drugs as the physiological mechanism by which the effects are produced, and goes on to show by some examples the difference which should be established between the effects of a toxic substance and its physiological action. He instances three frogs as examples. In one a certain quantity of strychnine is injected under the skin of the hind leg; in the same way another is made to absorb curara, and another chloral. In a short time all three frogs are in a state of relaxation and inert. It becomes a question whether the muscular relaxation common to the three frogs can be taken as a basis on which to define the physiological action of each of the substances employed. To the question whether it can be said that the physiological action of curara, chloral, and strychnine consists in the abolition of voluntary motion, M. Vulpian replies in the negative, and these examples serve to show that another path must be fol-

lowed to arrive at the knowledge of the physiological action of either of the three agents used. The animal under whose skin curara was injected had complete paralysis of the voluntary and reflex movements. This condition was the effect produced by the poison; but it does not indicate the physiological mechanism of the action of curara. In what, then, does this action consist? The complete paralysis of the curarised frog may depend on an abolition of the will; but there would then be persistence of the reflex movements. The first hypothesis, therefore, is not admissible. The paralytic condition might also depend on the abolition of the functions of the medulla spinalis or the motor nerves, or result from a muscular paralysis. It is, therefore, requisite to find out which of these three cases is the true one; and when this is determined, the true physiological action of curara will be discovered. Curara, then, leaves the muscular contractility intact; for, if the muscles of the curarised frog be excited, they will be seen to contract powerfully; it does not touch the medulla, nor act on the motor nerves. It has the property of preventing the motor nerves from transmitting motor excitations to the muscles; at first, the cerebral and medullary excitations; then soon even the experimental excitations directly influencing these nerves. The effect of strychnine on the frog was to produce tetanic convulsions; caused, according to M. Vulpian, by the action of the strychnine on the grey matter of the medulla spinalis, of which it heightens the reflex properties. Proceeding to the chloralised frog, M. Vulpian investigates the cause of the torpor—the species of paralysis resulting from chloralisation. He arrives at the conclusion that chloral acts in the opposite manner to strychnine, and that it produces muscular relaxation by temporarily destroying the properties of the grey medullary matter. It is evident, then, that the physiological action of curara, strychnine, and chloral does not consist in the abolition of movement, since each of these three agents possesses a special action. The first acts on the periphery of the nervous system; the second on the grey axis of the medulla so as to excite its properties; the third acts on the same part of the medulla, but, on the contrary, weakens and even paralyses its properties. M. Vulpian then cites carbonic oxide as another example. This toxic gas, when breathed by an animal, kills it by asphyxia; and M. Claude Bernard has made clear its physiological action, by demonstrating that this gas unites itself with the hæmoglobine of the red corpuscles of the blood, and renders them absolutely unfit to absorb the oxygen in the lungs. The physiological action of a toxic substance then may be defined as the mechanism by which the effects induced by this substance are produced; these effects may be paralysis, anaesthesia, convulsions, dyspnoea, asphyxia, stoppage of the heart's action, vomitings, diarrhoea, etc. In these cases, while excepting poisoning by carbonic oxide gas, the action of the toxic substance consists in a disturbance certainly due to a histo-chemical modification of certain anatomical elements, but without any lesions recognisable by our present means of investigation. This is not so in other cases. The toxic agent leaves perfectly visible traces. It produces a lesion, and the knowledge of this lesion affords up to a certain point the key to the phenomena observed during life. It is the production of this lesion which, in a great degree at least, constitutes the mechanism of the action of poison. Take,

for instance, a man poisoned by phosphorus. He grows gradually weaker in the midst of greater or less suffering; shows various symptoms—progressive torpidity, sometimes sickness and diarrhoea, fever, icterus, etc.; and he dies at the end of a few days. Such are the symptoms of poisoning by phosphorus. The mechanism which produces these effects is indicated to us by pathological anatomy, which shows us that phosphorus induces serious lesions, steatosis of the liver, with a certain amount of interstitial hepatitis, analogous changes in the kidneys, steatosis of the muscles of animal life and of the heart, fatty alterations of the glandular epithelia of the stomach and intestines; changes in the blood, small vessels, etc.

It must not, however, be imagined for an instant that the physiological action of every toxic or medicinal substance is known. Some of the most important of these, of which the therapeutic effects are perhaps the most remarkable observed in medical practice, act by a mechanism of which the secret is absolutely unknown. Amongst these are mercury and iodide of potassium, powerful against syphilis and scrofula; such is arsenic, efficacious in cases of chronic dermatoses; and in inveterate marsh-poisoning quinine, that truly heroic remedy in intermittent fever. The knowledge of the physiological properties of toxic or medicinal substances is of great importance in medicine.

(To be concluded.)

CRICHTON BROWNE ON PICROTOXINE AND THE ANTAGONISM BETWEEN PICROTOXINE AND CHLORAL-HYDRATE.

In his experiments (*British Medical Journal*, March 27, April 3, 10, 17, and 24) Dr. Browne has demonstrated two very important matters. The first is that we have in common use amongst brewers' drugs a very powerful poison: the second is a marked instance of antagonism. He commenced first by giving a certain dose of picrotoxine to various animals, and noting the result. The effect of this poison is to produce a series of convulsions, partially epileptic and partially tetanic in character. The first indication of the action of this poison upon rabbits is a paroxysmal twitching of the ears; then follow shakings of the head and clonic spasms of the eyelids and eyebrows. After an interval the ears again commence to twitch, and then the head is drawn backwards; the spasm extends down the dorsal muscles until the rabbit sits up on its hind paws, like a squirrel when eating; all the muscles, however, are subject to clonic spasm. Ultimately the animal falls over backwards, and is convulsed. There are nystagmus, and a very decided grinding of the teeth, with a free flow of saliva and the utterance of low cries. In cases where the animal died, death is preceded by a curious movement—from lying on its side the animal suddenly rises, makes a brief scamper, and then falls finally. In cases of recovery the convulsive explosions give way to irregular, clonic spasmodic movements, with a stumbling gait, which wears off gradually.

In reviewing these experiments, writes Dr. Browne, the first reflection that occurs is that picrotoxine is an energetic poison, and that the symptoms which it produces, in one stage at least, in many respects resemble those of epilepsy. There

are sudden and paroxysmal discharges of nerve-centres in which movements are co-ordinated. The spasms first involve one group of muscles, and then involve nearly all the muscles of the body. There are changes induced in the pulse and respiration similar to those produced by epilepsy, with biting of the tongue and foaming at the mouth. After the spasms are over there is a certain amount of paralysis and loss of muscular power analogous to epileptic hemiplegia. Picrotoxine, too, leaves *post mortem* appearances, which recall those produced by epilepsy. In other respects—in the continuous, remittent discharges, in the drawing back of the head and arching of the body—the effects produced are essentially tetanic in character. In its action, picrotoxine pursues a distinct course. Its first effects are upon a region in the lower part of the frontal lobes of the cerebrum, close to the main trunk of the middle cerebral artery, and from thence the discharge extends forwards, upwards, and backwards over the hemispheres—reading the action by the light of Ferrier's researches. The violent discharges caused by picrotoxine also have another and longitudinal mode of propagation. They explode the centres which lie below them, even if these were themselves unsusceptible to the poison, though the probability is that they also are affected, but more tardily than the cerebrum. At any rate the corpora quadrigemina, cerebellum, pons Varolii, and the medulla are speedily drawn into the vortex of morbid perturbation. The occurrence of opisthotonus probably marks the time when the corpora quadrigemina begin to participate in the *émeute*. When nystagmus commences, the cerebellum is implicated; and when a sudden exacerbation in the convulsive movements takes place it may be inferred that the pons and medulla are also engaged in the terrific discharges which ensue.

Having ascertained the action of picrotoxine and learned pretty accurately the minimum fatal dose, Dr. Browne proceeded to ascertain the dose of hydrate of chloral requisite to counteract the action of the poison. For a rabbit of three pounds, the fatal dose is one-twentieth of a grain given hypodermically. Ten grains of chloral-hydrate counteract this effectually; and the antagonism which exists betwixt these two agents is one of the most pronounced upon record. When the minimum fatal dose of picrotoxine is administered, and with it ten or twelve grains of hydrate of chloral, the rabbit, instead of dying in about an hour and a half after violent convulsions, perfectly recovers after a more or less disturbed sleep of two or three hours' duration; the same rabbit is killed a week afterwards by the same dose, one-twentieth of a grain, given alone. While lying wrapt in chloral sleep, slight twitchings of the fore paws indicate that the picrotoxine is at work but is under the supremacy of the chloral; if, however, the animal be wakened out of the chloral sleep, a regular typical fit is the result. Ere the fit is repeated, sleep comes on again and arrests the explosion. In order to still further determine the antagonism, the minimum fatal dose of chloral-hydrate in the rabbit was found. It is twelve grains to each pound of body weight. For a three pound rabbit, this gave thirty-six grains as the fatal dose. One twentieth of a grain of picrotoxine secured recovery; but if the dose exceeded the minimum by four grains, the effect of the picrotoxine was insufficient to arrest a fatal issue. Some experiments were then made with cats, but chloral-hydrate was much

less powerfully antagonistic to picrotoxine and strychnine in them than in rabbits.

From the amount of picrotoxine used by brewers, in the form of *cocculus Indicus*, Dr. Browne thinks it possible that much of the epilepsy with which this country is afflicted finds its origin in drinking beer so adulterated. In Scotland, where the popular drink is whisky, there is much less epilepsy in asylums.

Dr. Browne concludes his important communication as follows. The following general conclusions seem to be fairly established by the investigations which have been described in the foregoing paper.

1. Chloral-hydrate is physiologically antagonistic to picrotoxine in rabbits and guinea-pigs, and will, when administered in a suitable and proportionate dose, save life after a fatal dose of picrotoxine.

2. The antagonism of chloral-hydrate to picrotoxine in rabbits and guinea-pigs may be exerted so as to save life, even when it is not administered until fifteen or twenty minutes after the fatal dose of picrotoxine.

3. The antagonism of chloral-hydrate to picrotoxine is subject to two limitations: *a.* That the dose of picrotoxine may be so large as to kill before the chloral-hydrate has time to operate; *b.* That the dose of picrotoxine may be so large that nothing short of a poisonous dose of chloral-hydrate would avail to counteract it.

4. Picrotoxine is, to a very limited extent, antagonistic to chloral-hydrate in rabbits and guinea-pigs, by mitigating the hypnotic effects of the latter upon the brain and higher nervous centres, which it stimulates to activity.

5. The minimum fatal dose of chloral-hydrate in the rabbit is twelve grains to each pound of body weight.

6. Practically, no antagonism exists between picrotoxine and chloral-hydrate in the cat, nor between strychnia and chloral-hydrate.

7. Picrotoxine and chloral-hydrate, when administered simultaneously to the cat, cause death by stopping the action of the heart, and not by any destructive or exhausting action upon the supreme nervous centres.

8. Chloral-hydrate causes in the cat excitement and restlessness, with motor defects prior to the state of sopor, and its effects upon that animal are protracted to an extraordinary extent.

9. The energy of the action of chloral-hydrate, as measured by its minimum fatal dose, is in proportion to the development of the cerebral hemispheres.

J. MILNER FOTHERGILL, M.D.

ANATOMY AND PHYSIOLOGY.

SCHÄFER ON THE STRUCTURE OF PACINIAN CORPUSCLES.—Schäfer (*Quarterly Journal of Microscopical Science*, April 7, 1875) has studied the Pacinian corpuscles in the mesentery of the cat. He describes the central fibre, the core, and the capsular envelope.

The central fibre he finds, as other observers have done, to resemble in most respects the axis-cylinder of a nerve, but to be sometimes accompanied for a short distance within the core by the medullary sheath. No indication of any membranous structure corresponding to the primitive sheath (Schwann's sheath) of the nerves could be found immediately

investing the central fibre. The core is not, as commonly described, alike throughout, but an outer nucleated part may in most corpuscles be distinguished from the central, almost homogeneous, non-nucleated substance, which appears, when carefully examined, indistinctly striated, and, in a transverse section, irregularly concentric. With regard to the capsular envelope, composed, as is well known, of concentric layers, Schäfer confirms in the main the observations of Key and Retzius, according to whom the supposed simple 'capsules' each consist of two layers of flattened cells, placed as it were back to back, the intercapsular spaces being filled not merely with an albuminous fluid, but to a greater or less extent pervaded by fibres both white and elastic. What have been hitherto called the capsules of the Pacinian corpuscles are not isolable without rupture of these fibres, and it is better to speak of the coat or tunic as the structural unit, meaning by this the space traversed by fibres, and the two layers of flat cells bounding it. These tunics or layers are easily separated in Pacinian corpuscles treated with chloride of gold, which coagulates the albuminous fluid, so that separation then takes place more readily between the two layers of cells of which each so-called capsule is composed, that is to say, between the tunics.

The continuity of the structures composing the entering nerve, and those of the corpuscle may be thus stated. The entering nerve and its sheath are composed of (1) the axis-cylinder; (2) the medullary sheath; (3) a delicate layer of protoplasm, with oval nuclei embedded in it; (4) the sheath of Schwann; (5) the numerous laminae composing the neurilemma. Of these, the axis-cylinder (1) becomes the central fibre of the corpuscle; the medullary sheath (2) commonly, but not always, terminates as soon as the nerve enters the core (certainly not expanding to form the core as has been sometimes supposed). To take next the sheath of Schwann (4) this, when the nerve reaches the core, expands and passes to the outer part of the core. The main part, therefore, of the latter structure is continuous with the protoplasmic layer (3) which lies inside the sheath. The extreme outermost portion of the core is formed by a layer of connective tissue lying just inside the neurilemma. Finally, the coats of the Pacinian corpuscle agree and are continuous with the layers of the neurilemma (5), the latter consisting also of an outer and an inner bounding layer of flattened cells enclosing a space, which, however, in the case of the neurilemma contains little or no fluid. The capsular envelope contains also more layers than the neurilemma, the more internal being, as Schäfer thinks, those that are superadded.

KIDD AND BRANDT ON SPONTANEOUS MOVEMENT OF NUCLEOLI.—Kidd (*Quart. Journ. Micr. Science*, April, 1875, vol. xv. n.s. pp. 133) noticed that the nucleoli of certain epithelial cells from the frog's mouth presented a crenated appearance, which, on closer observation, turned out to be due to spontaneous amoeboid movements of the nucleolus. Processes were observed given off from the nucleolus, sometimes furnished with a knob at the end, and sometimes branched. Occasionally they returned into the body of the nucleolus while others were formed. The cells in which this took place were large, pale and non-ciliated, not lymphoid but looking like young epithelial cells. They were examined in aqueous humour on the hot stage.

Brandt (abstract in same journal, p. 182) had

previously observed ameboid movements leading to both change of form and locomotion in the nucleolus (germinal spot) of the ovum from the ovary of *Blatta orientalis*. The movements were slow but stimulated by heat.

Similar observations have been made by Balbiani, L. V. St. George, and others.

RECENT PAPERS.

On the Breasts of New-Born Infants. By M. de Sinéty. (*Gazette Méd. de Paris*, April 24.)

Application of the Graphic Method to the Determination of the Mechanism of Rejection in Rumination. By M. H. Toussaint. (*Archives de Physiologie*, April.)

Note on the Destruction of Collateral Nerves on the Fingers and on the Nervous Sections of the Upper Limb. By M. L. G. Richelot. (*Archives de Physiologie*, April.)

MEDICINE.

FERRARI-BRAVO AND VALTOSTA ON A CASE OF PARACENTESIS OF THE PLEURA, ABDOMEN, AND PERICARDIUM.—This case is related in the *Giornale Veneto di Scienze Mediche* for March, 1875. On August 5, 1874, a man named Natale Ruffio, aged thirty-five, a weaver, was admitted into the civil hospital at Treviso. He was of middle height and slender make, with defective nutrition, wasted muscles, and a yellow-brown skin. Four months previously, after very fatiguing labour, he had been attacked with continued fever, accompanied with cough and copious expectoration, dyspnoea, swelling of the lower limbs, and extreme weakness. On examination there was found to be dulness over the whole left half of the chest, and the lower part of the right half. The breath-sound was bronchial and harsh on the left side, and exaggerated on the right. In the abdomen the spleen and liver, especially the former, were enlarged. The spleen reached the middle line, and extended a finger-breadth below the umbilicus. He had long resided in a damp dwelling, badly ventilated, and altogether unhealthy, and the symptoms and physical signs pointed to the existence of malarial cachexia. Restorative treatment was ordered, with digitalis, to strengthen the force of the circulation. Up to August 13 the state of the breathing did not cause much anxiety; but on the subsequent days he had urgent dyspnoea, amounting at last to orthopnoea; there was very extensive dulness on percussion, the vesicular murmur was lessened, and the beat of the heart was scarcely perceptible. No relief being obtained by stimulants and restoratives, the left side of the chest was tapped, and about two litres of fluid escaped. The patient felt relief for three days, but then again became worse, and the secretion of urine was suspended. The puncture was therefore repeated, and gave exit to a litre and a half of serum; this was followed by relief which lasted about a month, during which time the patient became able to leave his bed, complained of little except a cough at night, and gained about three and a half pounds in weight. The spleen, however, remained enlarged; his breathing was not completely free, and his speech was always somewhat interrupted. Quinine and iron were given daily for about two months. The quantity of urine varied much, but there was never complete suppression. After this, iodide of potassium was given for a time, but was not well borne.

At the end of September, signs of abdominal effusion began to appear, being attended with scantiness of urine. His condition was again improved under the use of moderate doses of iodide of potassium, given for about a fortnight; but during the early part of November (perhaps in consequence of changes in the weather) severe respiratory symptoms set in, and were kept up by the pleural and pericardial effusion, and still more aggravated by the ascites. Drastics were given with the effect of producing copious alvine evacuations and reducing the effusion; so that, on November 14, the breathing was found to be more free in the right lung and in the posterior part of the left; but there was a harsh sound in the former, and the area of cardiac dulness was still enlarged. The patient himself said that he breathed more freely, and that he perceived a diminution of his abdomen.

About the middle of December, the breathing again became difficult, the urine was scanty, and ascites had increased; paracentesis abdominis was, therefore, performed on December 17, and between fifty and sixty ounces of a citrine yellow fluid were removed. The operation was at first followed by relief; but three days later the urine began to be scanty, and neither tonics nor digitalis improved the patient's condition. Painting with tincture of iodine was employed, but no good followed. Fever set in, at first erratic, but afterwards constant. The signs of effusion in the three cavities increased, and the general symptoms became much aggravated. Quinine and alcohol were given with only temporary relief. On December 30, paracentesis pericardii was performed by Dr. Valtosta. A fold of skin having been raised over the fifth intercostal space, an incision a little more than an inch long was made parallel to the ribs, in the centre of the space, commencing about two-fifths of an inch to the left of the sternum. The layers of muscle were then carefully divided, and an elastic dilatation was felt, which resisted a little under pressure, while the impulse of the apex of the heart could be indistinctly perceived. A puncture having been made in this, the point of a small trocar was introduced, and about ten ounces of fluid were removed, with immediate relief. On examination after the operation, the upward limit of dulness was found to be lower. The heart-beat could be felt, and the sounds heard, much more distinctly than before. The patient changed his position more easily; he was able to lie nearly horizontally; his pulse became full and strong; he slept well in the night and for several hours the next day. After four days, however, signs of effusion in the pleura again appeared; and on January 4, more than eight ounces of fluid of the same character as before were removed by paracentesis. On the 9th, the urine became scanty; the temperature, after some oscillations, rose to 104°; and he had painful cedema and redness of the left buttock, hip, and leg, on which he had lain for some time. No relief was afforded by local remedies or quinine; his cough became very troublesome; the dyspnoea increased; and, after lying for twelve hours in a state of coma, he died on January 14.

At the necropsy, the body was found to be extremely emaciated, but not in a state of marasmus. On removing the cartilage of the fourth and fifth ribs on the left side, a very little purulent exudation was found between the layers of the pleura. The anterior surface of the pericardium was distended, had a yellowish colour, and presented a small

point of the size of a pin's head, which, on the introduction of a probe, gave exit to serum. About two litres of serous exudation were found in the pleural cavities, mostly in the left. The left lung was strongly compressed towards the base of the thorax, and was scarcely one-third of its normal size. The right lung was more expanded, and contained tubercles in various stages in the upper and middle lobes; there were no caverns. The pericardium extended from about 1.2 inches on the right margin of the sternum to about 2.75 inches on the left. On section, it was found to be four times as thick as natural; and about a litre and a half of citrine yellow fluid escaped. The heart was somewhat enlarged, and was covered with white glistening adherent fibrinous deposits. There was concentric hypertrophy of the left ventricle; the valves on both sides were healthy. There was a little serous fluid in the abdomen; the liver was enlarged, congested, and indurated; the spleen was remarkably enlarged, congested, and diffuent; the kidneys, especially the right, were rather hyperæmic.

A. HENRY, M.D.

GOURLEY ON A CASE OF PERITYPHLITIC ABSCESS DUE TO PERFORATION OF THE APPENDIX VERMIFORMIS.—In the *Virginia Medical Monthly* for March, 1875, is a paper on the above subject which was read before the Medical Society of New York by Dr. J. W. S. Gourley. The patient was a gentleman, thirty-seven years of age, who had suffered from right oblique inguinal hernia for two years, and had worn a truss, but at times with considerable inconvenience. On two occasions the hernia had become irreducible, but yielded to rest in the horizontal position, fomentations, etc. There was a history of his having swallowed a tooth two years before the attack of typhlitis. In June, 1873, he had unusual and severe pain in the right iliac region and fossa; he was constipated, and there was constitutional disturbance; a swelling followed in which no fluctuation could be detected, but it ended in an abscess, which in August opened spontaneously; after this, the patient rapidly got better, and remained so until February of 1874, when he had another attack of pain and great swelling in the right iliac region, and deep-seated fluctuation was made out. Dr. Gourley then advised 'incision, as for ligation of the iliac artery,' and after a few days waiting this was done. He thus describes the operation. 'An incision six inches in length was made parallel to and one and a half inches above Poupart's ligament, cutting down layer by layer to the fascia transversalis; the abscess was freely laid open, from which about a pint and a half of fetid, flaky pus escaped.' No foreign body was discovered; but at the bottom of the wound a faecal concretion about the size of a horse-bean was found. This was at first supposed to contain some foreign body, but it did not; the cavity was filled with lint, and it gradually and completely closed by the middle of May. The patient has continued well.

In his remarks on the case, Dr. Gourley puts the question—Did the typhlitis result from the hernia? and answers this in the negative, for the reason that the abscess did not point in the inguinal canal; nor does he think that undue pressure of the truss caused it. On the whole, he is strongly of opinion, although the swallowed tooth was not found, that some foreign substance was the occasion of the abscess; and the faecal concretion found in the cavity of the abscess

must have escaped from the vermiform appendix. On the point of treatment, the author insists on the advantages of making an early and very free opening into the abscess, and filling the cavity with lint, so that slow granulation from the bottom should take place. He quotes the opinion of Dr. Willard Parker, that, if the patient live over five days, it may be inferred that sufficient adhesions have formed to circumscribe the pus until it accumulates in large enough quantity to break through them. Dr. Gourley says that, when an obstinate faecal fistula remains, it may be assumed that perforation of the cæcum, and not of the appendix, has taken place.

The prognosis in this affection is bad, especially when the foreign body drops into the peritoneal cavity; in these cases also, the author thinks the best chance is afforded to the patient by timely interference, as recommended by Dr. Lewis in a paper in the *New York Medical Journal* for November, 1856. Dr. Gourley enters somewhat fully into the literature of the subject, and instances cases of Dr. Willard Parker, Mr. Hancock of London, and many others. WM. ALLINGHAM.

PREVOST AND DAVID ON A CASE OF ATROPHY OF THE RIGHT THENAR EMINENCE WITH LESION OF THE SPINAL CORD.—The following case is reported by J. L. Prevost and C. David, of the cantonal hospital at Geneva (*Archives de Physiologie*, September, 1874). M. Prevost observes that it constitutes a fresh example of the muscular atrophy limited to one group of muscles, and having a corresponding limited lesion of the spinal cord. In 1865, the author presented an example of atrophy of the muscles of the leg, with lesion of the grey matter of the anterior horn of the same side. Until then, he adds, no observer had pointed out, as traced by himself and M. Vulpian, the disappearance of nerve-cells from the external group in the anterior horn, in muscular atrophy. Subsequently this connection has repeatedly been noticed, both pathologically and experimentally produced. Dr. Prevost sums up the lesions as consisting of, 1. Distinct atrophy of the right anterior root of the eighth pair of cervical nerves; 2. Slightly marked atrophy of the right anterior root of the seventh cervical nerves; 3. Atrophy of the grey matter of the anterior horn at this level, extending two or three centimètres in length (about one inch).

Louis F., sixty years of age, pianoforte-maker, was admitted March 26, 1874, with a wound of the scalp, and died from putrid fever on April 7. He asserted that the atrophy of his thumb had existed from infancy, that he had not suffered any pain from it, but had not been able to execute the movements of opposition. On *post mortem* examination, the thenar muscles were found to have been transformed into thin masses of white fatty substance. Some few muscular fibres could be isolated. In these the striæ still existed; in other parts there remained only large fat-cells, limited by connective tissue. On the palmar face of the eminence a thin layer of muscular structure was found, probably the remains of the adductor pollicis. The first dorsal interosseous muscle, along the border of the index metacarpal bone, was completely atrophied and transformed into fat. All other muscles of the hand and forearm were perfectly healthy. The hypothenar eminence in particular was observed to be intact.

The only abnormal appearance in the nerves of the affected limb was an excess of connective tissue in those supplying the thenar eminence. The roots of

the eighth cervical nerves at their exit from the spine on the right were much more slender and contained fewer fibres than on the left side. Corresponding with this diminution of the nerve-roots were certain changes in the grey matter of the spinal cord. These changes were evident to the naked eye, consisting in a manifest diminution of the size of the anterior horn on the right side, the difference becoming less above and below, until it merged into the normal structure. [These graduations are graphically represented in the plate which accompanies the paper.—*Rep.*] At the level of the eighth nerve there were but a scattered few of the cells of the external group, in the anterior horn. Departing from this point, upwards and downwards, the nerve-cells were observed to be reduced, in some parts, to a mere trace of their structure. At the seat of this lesion of the cells the substance of the cord was altered, presenting a granular fibrillated character, remarkably fragile, and taking the carmine tint deeply. So brittle was the cord at this point, that it was almost impossible to obtain perfect sections. This brittleness occasioned tearing and fissures recalling to the mind of the authors the appearances described by Dr. Lockhart Clarke as 'granular disintegration.' The white substance of the cord on the right side appeared to have undergone a slight or incipient degree of sclerosis. Amyloid bodies were in great numbers in the seat of this change. The posterior right horn was not affected beyond presenting a great number of amyloid bodies in the tracts of vessels. The central canal was filled with nuclei and corpora amylacea.

The preceding case, with its pathological history, is placed by the authors in the same category with others recorded by Cornil, Vulpian, Damaschino, Roger, Charcot, Joffroy, Pierret, Müller, Lockhart Clarke, Duchenne, Petit and Roth. It proves, they hold, that lesions of the nerve-centres give rise to muscular atrophy, as confirmed by experiments in which the sequence occurred, and in the face of which, they hold, it is difficult to assign a secondary character to the medullary lesion. They admit that the original nature of the lesion cannot in the present instance be determined. It is probable that the subject of these observations was addicted to drink, a condition favouring the premature degeneration of tissues. A physiological interest further attaches to the present case inasmuch as it serves to demonstrate the nervous supply to the thenar muscles to be from the eighth cervical nerve.

[A full and instructive narrative of a case of like nature to the preceding, was communicated by Drs. Adamson and Oswald Bell to Beale's *Archives of Medicine*, vol. iii., accompanied by an elaborate exposition, from the pen of Dr. Lockhart Clarke, of the pathological changes found in the spinal cord. This history, thus published in 1861, was the first recorded account of the lesions of the nervous centres connected with muscular atrophy.—*Rep.*]

W. B. KESTEVEN, M.D.

NORRIS ON OPTIC NEURITIS.—Dr. W. Norris, of Philadelphia, has published two cases of optic neuritis occurring with intracranial disease, in both of which the discs were examined microscopically after death. The report is accompanied by large coloured lithographs of the morbid appearances. The first patient, a clerk aged twenty-eight, came under care in November, 1873. He gave a history of attacks of severe occipital pain, nausea, frequent vomiting,

and gradual enfeeblement for two years. Latterly his sight had become dim. When first seen he was pallid and obese, his intellection was 'slow but unimpaired.' His hands were feeble and tremulous, his gait very tottering. Both pupils were partly dilated, both external recti partly paralysed, the right more. In walking towards an object he turned considerably to the left. With the right eye he could count fingers at a few feet. Vision in left eye was $\frac{10}{6}$. The discs were very prominent and their normal boundaries obscured. In both there was a large development of capillary vessels; the right was beginning to atrophy, having already acquired a bluish white tint. The summit of the right disc was visible with $+\frac{1}{8}$, that of the left with $+\frac{1}{12}$, and the fundus near the equator of each eye with $+\frac{1}{4}$. He had paroxysms of intense headache in which his pulse would vary from 90 to 116, and his temperature from 98° to 100.5°. He had morning vomiting. Then occurred a transient attack of universal powerlessness, partial loss of motion and sensation on the right side of the face and gradually increasing loss of vision. The paroxysms of headache were always attended with marked deterioration of sight. He gradually became weaker and weaker, and died six months after he came under care. On necropsy, a tumour was found extending transversely through the cerebellum. Judging from the lithograph, its total bulk must have been about that of a hen's egg. Microscopic examination showed that the disc (which side is not specified) measured $\frac{1}{20}$ th from the level of the choroid to the summit of the papilla. The lamina cribrosa was also swollen, bulging forward, and the whole tissue stained far more intensely with carmine than a healthy adult nerve; closely resembling, indeed, the optic nerve of the foetus. The nerve-fibres showed numerous spindle-shaped swellings which stained deeply with carmine, and in the interstitial connective tissue were very numerous nuclei with newly formed blood-vessels.

The second patient was a young woman, aged twenty-three, who had symptoms of lead-poisoning from using white lead as a cosmetic. For two months only before she came under care she had suffered from headache, loss of appetite, violent gastric pain, nausea and vomiting. On admission there was a marked blue line on the gums. Soon after she was seized with epileptiform convulsions, and in the third she died. Ophthalmoscopic examination between paroxysms showed that the disc was prominent, its outline hazy, its colour an opaque bluish-white, the sclerotic ring not visible, and the vessels diminished in calibre. Beyond anæmia of the brain-substance and a marked increase of cerebro-spinal fluid there were no naked eye changes found in the brain. The sheaths of the optic nerves were distended. Microscopic examination showed numerous capillary vessels throughout the swollen disc, and a moderate development of the nuclei of the connective tissue. There were none of the spindle-shaped swellings of the nerve-fibres found in the former case.

In both of the cases, sections of the posterior parts of the optic nerves were compared with those of the optic entrance, and in both the increase of interstitial connective tissue and deep staining of its nuclei, though most marked in the latter position, extended throughout the length of the nerve.

[This paper is a valuable contribution both to clinical medicine and to ophthalmology. The author thinks that tumours of the cerebellum and

of the posterior parts of the hemisphere are more apt to produce 'choked disc' than those of the anterior lobes. Tumours of the posterior lobes are, in the reporter's experience, rare; he thinks that tumours, whether in the anterior lobe or in the cerebellum, almost always produce changes in the optic nerves. These changes the reporter calls optic neuritis; contrary to most, if not all, other writers on the subject, he believes that there is but one kind of acute change from tumour in any part of the encephalon. He does not think that swelling of the optic nerves is produced by raised intracranial pressure. There are, he thinks, but two kinds of ophthalmoscopic changes seen from intracranial disease, optic neuritis from tumour, and swelling of the discs (from, as he believes, thrombosis of the veins) in some cases of meningitis. In a few cases of neuritis, with great swelling, there is no discoverable intracranial disease. We repeat that the author's paper is a contribution of great practical value. The careful estimation of degrees of swelling of the discs is worthy of imitation.—*Rep.*]

J. HUGHLINGS JACKSON, M.D.

WELCH ON THE NATURE, VARIETIES, AND ETIOLOGY OF PULMONARY CONSUMPTION IN THE ARMY.—The following are some of the main conclusions arrived at by Mr. Welch, Assistant Professor of Pathology at Netley, in his thesis on the 'Nature and Varieties of Destructive Lung-Disease included under the term Pulmonary Consumption, as seen among Soldiers, and the Hygienic Conditions under which they occur' (*Alexander Prize Essay*, 1872). All the varieties of military phthisis are divisible into three groups, viz: 1. Inflammatory and idiopathic, with a sub-group of inflammatory specific; 2. Specific, textural; and 3. Alien, consequential, or ingrafted. By far the larger number of cases, viz., 73·81 per cent. (out of a total of 230 cases) fall under the first head, which includes pneumonic (lobar, lobular, and hæmorrhagic) and bronchitic (acute and chronic catarrhal) phthisis. The sub-group of specific inflammatory lesions yields 9·53 per cent., and is confined to pneumonic and bronchitic phthisis of syphilitic origin. The second group, comprising syphilitic gummatous phthisis and tubercular phthisis, was met with in 11·28 per cent., the numbers being equally divided between the two specific textural lesions indicated. The last group—made up of dysenteric, pyæmic, embolic, and diabetic phthisis, with phthisis from local irritation (*e.g.*, grinder's phthisis) gives 5·14 per cent. An exhaustive analysis of each form of phthisis follows, many illustrative cases being given with full detail. The lobar pneumonic form occurred in six per cent. of the cases, the subjects attached being of all ages and of previous good health. The limitation of the disease to one lung, generally involving the base, and its frequent association with hæmoptysis, which often proved fatal, are considered to be the distinctive characters of this form. Phthisis originating in lobular pneumonia occurred in 26 per cent., and was marked by an insidious origin, the apex being primarily attacked and both lungs usually involved, the disease mostly taking a chronic course. Under 'hæmorrhagic phthisis' are included 17·28 per cent. of the cases, occurring in subjects free from tubercular or strumous diathesis, and leading directly to pneumonic changes, without the development of miliary tubercle. The hæmorrhage is attributed to delicacy in the pulmonary capillaries, chiefly induced by constric-

tion of the chest. The catarrhal or bronchitic variety, characterised by an antecedent bronchitis, was met with in an acute form in 15 per cent., and in a chronic form in 8 per cent. It is stated that in all the cases included within this first group there was no question of tubercular or other diathesis, and almost entire freedom from any predisposing cause, so that they could mostly be held to depend upon the hygienic conditions peculiar to military life. In many of the cases tubercular changes occurred secondarily. The pathology of these cases is fully described, together with an analysis of the associated lesions met with in 'inflammatory' phthisis. Intestinal lesions are ascribed to catarrh, although a secondary tubercular change is admitted. Syphilis as a cause of inflammatory phthisis, arising either in pneumonia or in bronchitis, is held to be proved in many cases; and the extreme frequency with which evidences of phthisis are met with in the subjects of syphilis dying from other causes is insisted on in support of this, together with the fact that in most cases the symptoms of the lung-disease followed exposure to syphilitic infection. The truly specific lesion of visceral syphilis, viz., the gumma, was met with in 5·6 per cent. of the cases; the characters of this 'gummatous phthisis' being previous inoculation with the syphilitic virus, followed at a late period by pulmonary symptoms, the extreme variability in site of the destructive lesion, with the existence of gummata and chronic inflammatory changes. The histological distinctions between the syphilitic and tubercular nodule are based chiefly upon the presence of well-defined spindle-cell forms merging into fibrous tissue in the former, contrasted with the small round-cell elements imbedded in fibrous matrix in the latter. Purely tubercular phthisis was of rare occurrence, and was always preceded by a term of ill-health. A few pages are devoted to the forms of phthisis included under the third group. The exigencies of military service as a factor in the production of these different forms of phthisis are then fully described; the vitiated atmosphere of barracks being held to be accountable for nearly one half of the whole number of cases, combined with exposure to climatic variations, and constriction of the chest from accoutrements, etc.; and the essay concludes with an urgent appeal for reform in these directions, much of the pulmonary disease met with in the army being clearly traceable to preventable causes.

SIDNEY COUPLAND, M.D.

KRAMER ON TWO INTERESTING CASES OF VARIOLA.—The first of these cases, which are reported by Emmanuel Kramer in the *Vierteljahrsschrift für Dermatologie und Syphilis* (1874), was that of a young man, aged seventeen, admitted to the small-pox hospital at Vienna on June 13, 1874, on the fourth day of his attack. Vesicles were disseminated all over the body, and were beginning to change into pustules here and there. There was diffused erythema all over the body, most intense at the level of the right femoral triangle; it disappeared on the 15th. On the 17th, the eighth day of the illness, there was a scarlatinous redness of the whole body, deepest on the pelvis, arms and thighs. Redness, with punctured ecchymoses on the velum palati and adenitis of the cervical glands, especially on the left side, were also present. Some of the variolous pustules were in a state of suppuration, whilst others were already dried up. The urine contained albumen. Temperature 103·6°

Fahr. On the 18th the variolous eruption was dried up; there was double submaxillary adenitis, with a little albumen in the urine. Temperature $104^{\circ}72^{\circ}$ Fahr. On the 20th there was a miliary eruption at the bend of the elbow; on the 23rd the scarlatinous eruption began to desquamate; on the 27th erysipelas of the face made its appearance, but disappeared very rapidly. Convalescence set in at the beginning of July, but the patient had two attacks of erysipelas in the face, one on July 20, the other on the 29th; both, however, were extremely mild and almost apyretic.

The second case was one of variola immediately consecutive on a previous attack. The patient was a young man, aged eighteen, who came into the small-pox hospital on the fifth day of an attack of variola discreta. The pustules began to dry up at the end of a week. On the sixteenth day after the appearance of the disease the patient had violent shivering, a temperature of $103^{\circ}8^{\circ}$ Fahr. and lumbar rachialgia. On the twenty-ninth day there was diffused generalised erythema, and at night the fever rose to forty degrees. On the thirty-first day variolous efflorescences made their appearance on the face, hands, and feet. The first signs of the drying up of the fresh eruption appeared on the face on the thirty-fourth day, and recovery ensued without any accident.

RECENT PAPERS.

Some of the Dangers of Vaccination. By Dr. Nelson. (*St. Louis Medical and Surgical Journal*, April, 1875.)

On the Scientific and Empirical Investigation of Epilepsies. By Dr. Hughlings Jackson. (*Medical Times and Circular*, April 28.)

Diphtheritic Paralysis. By Sir J. R. Cormack. (*British Medical Journal*, May 1.)

OPHTHALMOLOGY AND OTOLOGY.

NIEDEN ON NYSTAGMUS AS THE RESULT OF HEMERALOPIA.—The *Berliner Klinische Wochenschrift* of November 23, 1874, contains an account of some very remarkable cases of this kind which had occurred in the practice of Dr. Nieden of Bochum. This distressing affection of the muscles is unfortunately very commonly met with in the eyes of children, and although most writers would allow the possibility of its occurrence during adult age, yet they would attribute it to some congenital peculiarity, or to some disease contracted in very early life. In the instances here brought forward no such history was forthcoming; and at first sight Dr. Nieden was at a loss to account for the phenomena, occurring as they did under such extraordinary circumstances. The cases, six in number, are reported in great detail, and until we reach their explanation it is certainly remarkable that in no single instance was any structural alteration to be found in the eye either within or without; and the correctness of the diagnosis in each instance was verified by the cure which appropriate treatment was able to bring about.

H. B., aged thirty, a miner by occupation, applied for advice in February, 1874, and complained that for the last year he had been annoyed by a mist before his eyes, which he first noticed whenever he entered the mine and hung up his lamp at some distance from his work; for some short time he could look at the lamp without difficulty, but he

then found the light begin to dance and to flit to and fro; he then became giddy and was compelled to shut his eyes. This gave him relief, but only for a time. When this state of things had lasted for a month, he noticed that his eyes had lost their power of fixation when he looked at any distant light, on his way to his work in the dim light of early morning; any effort on his part to steady his eyes immediately brought on headache and vertigo. As time went on, he found that his vision failed him after sunset, that he could read only with difficulty, and the light of his room was altogether insufficient; and yet in broad daylight and in sunshine his sight was perfect in every way. Except that he looked anæmic, there was nothing remarkable in his appearance. His eyes appeared normal in every way when first examined by daylight; their movements were perfect and entirely under his control; their vision was $\frac{1}{12}$, and they read Snellen $1\frac{1}{2}$ at 18 inches fluently. The field of vision and perception of colours were normal. So far, it was hard to say what was the nature of the affection. In the hope that the ophthalmoscope might reveal some structural change, the room was now darkened, and at once the symptoms such as he describes made their appearance. When he looked across the room, his eyes began to oscillate with extreme rapidity from left to right, and after a few moments he was compelled to shut them. When either eye was examined singly, the result was the same. His vision by this artificial light had fallen to $\frac{1}{2}$, and he could only read Snellen VI. with difficulty. The field of vision was not diminished, but the perception of colours was less acute. The ophthalmoscope revealed absolutely nothing abnormal. The daylight was again admitted into the room, and his symptoms disappeared once more. He regained control over his eyes, and his vision again was $\frac{1}{12}$. The existence of well marked hemeralopia was thus evident; and although it could not be shown that the eyes of miners are especially liable to it, yet in the nature of this man's employment it was easy to read the explanation of its development. While at work in the mine, his eyes were accustomed only to very dim and imperfect illumination, and the sudden change to the bright light of the sky above which occurred daily was sufficient in time to exhaust the power of the retina to such an extent that it was unable to convey impressions whenever the sun went down, and when the man attempted to do anything by artificial light, or by any light less than that of broad day. To account for the nystagmus was not so easy; but from the man's own account, Dr. Nieden was inclined to believe that exposure to cold from draughts, and to foul air within the mine, had much to do with its production.

A second patient, from the very same pit, applied on the following day, with much the same complaint; the nystagmus, in his case, was around the horizontal axis of the eyeballs, whereas in the first case it had occurred mainly around the vertical axis. This man also was well in health, and his eyes presented no appearance whatever of disease, except their failing vision and their irregular movements under the circumstances above mentioned.

A third patient from another mine presented himself; in substance his condition and his symptoms were such as have been described; but in his case the condition of the mine could have had no influence, for its temperature and its ventilation were as perfect as it was possible to maintain them. A further illus-

tration how nystagmus may develop in eyes which are affected with hemeralopia, and these not the eyes of miners or quarrymen, may be seen in Case 6, which Dr. Nieden records.

A timber hewer, aged forty-seven, was for years much exposed to wind and weather during the spring and summer months; much of his work was over a saw-pit, where, for hours together as top-sawyer, he was compelled to fix his eyes steadily upon his saw. In bright sunshine, the reflection from this and from the smooth surfaces of the planks was very dazzling and fatiguing, and in the course of time he found that on a cloudy day his vision appeared much diminished, and, on looking around him, especially when evening came, all objects became unsteady, and he saw them double. During the winter time, when he was otherwise employed, these symptoms disappeared, to make themselves felt again, however, on the first spring day when he resumed his work. On examination by daylight his vision was nearly normal, with presbyopia = $\frac{1}{36}$ th, and oscillating nystagmus whenever he directed his eyes to any distant object; when the room was darkened his vision sank to $\frac{1}{6}$ th; in appearance, and in all other respects his eyes were normal.

It is characteristic of all the cases here recorded, that the irregular movements of the muscles appear to have arisen in consequence of the effort to compensate for the weakened power of the retina by increased exertions on the part of the muscles required for fixation, and also that no one pair of muscles was affected, but each and all of those supplied by the third pair of nerves, including the superior oblique. It is, therefore, impossible to classify them with those instances of hemeralopia which were described by Von Gräfe (*Archiv für Ophthalmologie*, vol. v. part 1) as being associated with insufficiency of the internal recti, inasmuch as in every one of them the failure in the muscles was displayed during distant vision, and, provided the light were good, the power of convergence and of reading was unaffected. Nor did any of the cases present those fatty growths beneath the conjunctiva similar to pinguecula, such as Bitot has described as characteristic of hemeralopia.

The treatment adopted appears to have been eminently successful; the eyes were protected by grey glasses, and strychnine was given continuously for some days by means of hypodermic injections. In one case only, in which the symptoms were of long standing, was it thought necessary to supplement this by the use of the continuous current, with the strength of six cells at first, increased subsequently to a strength of eight and of twelve cells. By these means, complete relief was in the end attained.

LANDSBERG ON DOUBLE-SIDED PARALYSIS OF THE OCULAR MUSCLES.—Dr. M. Landsberg (*Berliner Klinische Wochenschrift*, December 21, 1874), remarks that the paresis or paralysis of one or more of the muscles of the eyeball is very often a clue to the nature of intracranial disease, inasmuch as the particular muscles implicated, or the order in which several are successively implicated, and the temporary or permanent derangement of its functions are all of importance in enabling us to understand the nature of the case with which we have to deal. Von Gräfe (*Archiv für Ophthalmologie*, vol. xii.) has left upon record the details of several cases in which paralysis of one or more muscles upon each side had been noticed, and he has expressed the opinion that

the explanation of these and similar cases is to be found in the existence of periostitis at the base of the skull. On the other hand Michel (*Klinische Monatsblätter*, 1872) has described an instance of double-sided paralysis of the third pair, in connection with rheumatic fever, which, he concludes, was due to hyperæmia of the meninges and consequent effusion of serum. Landsberg is unable to endorse the opinion of Von Gräfe on this point; and in the paper before us he has published the details of several cases which he cannot include in the category as being due to periostitis.

Case 1.—Louis S., having previously enjoyed very good health, took a sudden chill after dancing, in the middle of September, 1873, and during the same night was seized with intense pain in his eyes, which rendered it impossible to move them without moving his head at the same time. The next morning he saw double, and was still in pain; but the pain left him in the course of the next few days. The double vision, however, remained, and became more and more annoying because the images appeared oblique. He presented himself to Dr. Landsberg on October 12, who found absolute immobility of both external recti muscles; the movement inwards of the eyes was limited to 1''; while the movements upwards, and upwards and outwards, and downwards, were altogether abolished. The fourth pair appeared to be involved also; but the movements of the eyelids, and the action of the pupils and the accommodation, were not affected on either side. The acuteness of vision was normal. The double images were not always noticed, in all probability because of the great distance which intervened between them. With the exception of the pain in the eyes, the patient had nothing to complain of, his general health not being impaired. The treatment consisted in the administration of tartar emetic in nauseating doses; and at the end of three days the patient could move his eyes upwards and inwards, the improvement being more marked on the left than on the right side. The same treatment being persevered with, the improvement was maintained; and by the end of October considerable power of movement outwards had returned. Owing to some degree of permanent contraction taking place in the internal recti, there was for some time a slight degree of strabismus. With the aid of the continuous galvanic current this was eventually overcome, and by the end of January the patient was in every respect well again.

Case 2.—Herr Z., aged forty, consulted Dr. Landsberg on August 21, 1873, having suddenly been seized with pain in the orbits, followed by diplopia, about eight days previously; he had up to this time enjoyed very good health, and had never suffered from rheumatism or syphilis. On examination, it was found that the external rectus of the left eye had lost its power, and later on, when the case had been under observation some days, it was evident from the nature and position of the diplopia that the corresponding muscle on the right side was also affected. The recovery of this patient, though eventually complete, was but slow, and did not appear to be materially assisted by any remedies employed.

In the former of these two cases it is difficult to suppose that the cause could be referred to any basilar periostitis such as Von Gräfe has suggested, and Dr. Landsberg inclines very strongly to the opinion that the mischief was rheumatic in its origin. But as regards this latter case, while we cannot suppose

the existence of any intracranial periostitis, there is no reason to refer it to the category of rheumatic affections. The third case is recorded as the type of a double-sided paralysis, due in all probability to the occurrence of intracranial hæmorrhage.

Case 3.—Ida B., aged fourteen, was brought to Dr. Landsberg by her mother in September, 1871, who said that a fortnight previously the child had fallen upon the back of her head; she was stunned at the time, and when at length she recovered her senses she complained of severe headache and of seeing everything double. During the last few days the diplopia had been less noticed, but the pain was persistent. On close examination it became evident that both the external recti muscles had lost their power over the eyes, and that diplopia was always present under certain conditions. In the course of time a secondary contraction of the internal recti occurred, but was in its turn overcome. No other muscle was affected, and neither the action of the pupil nor the accommodation was interfered with. In the course of a few weeks the child had completely recovered, no signs of cerebral disease or even cerebral disturbance having manifested themselves.

BOWATER J. VERNON.

PAGE ON TRANSMISSION THROUGH THREE GENERATIONS OF MICROPHthalmOS, IRIDEREMIA, AND NYSTAGMUS.—In the *Lancet* of August 8 appears a short, but very interesting account, by Mr. Page, of the transmission through three generations of microphthalmos, irideremia, and nystagmus. The literature of the subject appears to be neither very copious nor satisfactory. Boehm records, in a monograph on nystagmus, an instance in which there was a tendency to albinism and consequent nystagmus in a family, gradually increasing in intensity from a blue-eyed mother, with colourless eyebrows and eyelashes, through a daughter, to a granddaughter, 'whose hair was originally as white as well-bleached linen.' He mentions also the occurrence of nystagmus in a family of six brothers. Gadaud gives a summary of five theories as to the nature of nystagmus.

In Mr. Page's case, that of a girl, aged fifteen, there were an almost total absence of the irides, smallness of the globes and corneæ, and constant nystagmus. The movements of the eye-balls were 'in general rotatory, and only occasionally horizontal, the latter having the appearance of being caused by strong sharp tugs of the external recti muscles.' Her mother, who suffered from the same affection, had children in the following order:—1. Daughter, with defect, and mother of daughter with like defect; 2. Son, died of 'water in the head'; 3. Son; 4. Daughter; 5. Daughter; the patient in question. The hair in these members of the family is brown, but of different shades in each. None of the parents were relations.

Mr. Page does not consider the views respecting nystagmus, put forth by Boehm and Gadaud, to be satisfactory, and seems rather to incline to the conclusions of Dr. Ferrier, founded upon his now well-known experiments, made in the West Riding Asylum, that this condition is an epileptiform affection of the oculomotorial centres, located in the cerebellum, and reasonably enough remarks that 'as far as transmission goes, there seems to be no more reason against an hereditary abnormality of the cerebellum than against an hereditary abnormality of the eyes themselves.' [It may be worth while to mention, as

bearing upon what has just been recorded, that there is, or very lately was, in the garden of the Zoological Society, an albino monkey, labelled 'white variety,' belonging, if our memory serve us aright, to the genus *Macacus*, in which some slight nystagmus of the eyeballs could be observed. Mr. Boyle, in his work *Through Fanti Land to Coomassie*, states that, so far as his experience goes, all albinos in the tropics are idiotic. It would be interesting to know whether this is supported by any medical evidence.—*Rep.*]

J. C. GALTON.

GRUBER ON THE TREATMENT OF INFLAMMATIONS OF THE MIDDLE EAR.—Professor Gruber read before the k. k. Gesellschaft der Aerzte in Vienna, a paper which is reported in the *Allgemeine Wiener Medizinische Zeitung* for December 22, on the treatment of inflammatory affections of the middle ear. He pointed out especially the fact which ought to be kept in mind by aurists, that the tissues bounding the tympanic cavity are very unfavourable to the resorption of exudation in the cavity, while the natural outlet, the Eustachian canal, has in those cases where it is most desired that it should be open, viz., when mucous or purulent accumulations are lying in the cavity, its mucous lining so much swollen, and the lumen so narrowed thereby, that the passage of such masses is not easy, and, moreover, the muscles of the tube are in such cases often disturbed in their function and incapable of acting sufficiently. The means employed by surgeons to remove such accumulations have been, and are, perforation of the membrana tympani, passage of the air-douche through the Eustachian tube, or both combined; some insisting that the evacuation of the cavity without perforation of the membrane is not possible; others, among whom stands Professor Gruber, holding that the air-douche alone is often successful, while in others it is not so, or only imperfectly. To determine the cause of failure in some, Gruber has examined fifty temporal bones. He found in normal auditory organs great differences in the distance from the isthmus to the mouth of the Eustachian tube, the distance varying from one and a half to four and a half millimètres (0.06 to 0.18 inch). In some the opening of the canal was circular, in others very irregular, and in other cases so narrowed that it had a breadth of three-quarters of a millimètre, with a height of from two to three millimètres. From the walls of the bony tube, also, were sometimes seen ridges projecting, which, especially when the mucous membrane is swollen, must lessen the lumen of the tube considerably. The tympanic opening of the tube was sometimes as high as five millimètres above the floor of the cavity, while in others it opened close on the floor. The posterior wall of the carotid canal, in some cases, projected into the tympanic cavity on its anterior wall, while in others its course on that wall was not recognisable. The convexity formed on the floor of the cavity by the jugular fossa was found smooth or irregular, according to the development of the superior wall of the fossa. Lastly, bony lamellæ were sometimes seen to spring from the walls of the cavity projecting into it, and so forming deep recesses in which masses of exudation might become fixed.

These peculiarities must have, as Professor Gruber says, an influence on the action of the air-douche; and he raises the question of the advisa-

bility of employing this remedy always for the removal of exudations from the tympanic cavity. He believes that in some cases where purulent or ichorous exudation is present, the air-douche may drive it into the mastoid cells, and so cause inflammatory processes there; and, with this belief, he proposes to remove the exudation by means of a suction-instrument, passed through the membrane in the same manner as has already been done in England.

HAGEN ON PERCUSSION OF THE SKULL AND ITS SIGNIFICATION FOR THE DIAGNOSIS OF EXUDATION IN THE TYMPANIC CAVITY.—In the *Monatsschrift für Ohrenheilkunde* for October, 1874, Dr. R. Hagen gives the results of his observations of percussion on the skull in healthy and diseased ears. If the percussion be on the middle line of the vertex, the noise occasioned thereby is synchronous and equally loud in both ears if they be healthy, have an equal hearing power, and both meatus be open. Under the same circumstances, when the percussion is on the mastoid process or to one side of the middle line, the noise is heard on the corresponding side only. Closing one meatus by any means will cause the noise to be louder in that ear. Where the membrana tympani is clogged from the inside, and not from the external meatus by a serous accumulation, as has been determined by the speculum before making the percussion experiment, every patient, without exception, has experienced in the affected ear a clattering noise. In using the three limbed auscultation-tube in such cases, Dr. Hagen was not able to detect a difference in the sounds conveyed to his ears, as one would have expected. By Weber-Liel's tympanic catheter he removed and replaced repeatedly the serous exudation in a diseased ear, and always with the same results as above-mentioned, *i.e.*, the abolition of the clattering noise on the removal of the serous exudation, and its return on the re-introduction of the exudation. He thinks, therefore, that where from thickening of the membrane the presence of serous exudation may be doubted, this method may be relied upon as pathognomonic of its presence, and in no case where he has acted upon his diagnosis so obtained has he been deceived. He has made numerous observations in cases where purulent or mucous exudations were present, but the patient does not experience the same sound in these cases.

In the serous exudation which Dr. Hagen has removed in such cases he has found, microscopically, white blood-corpuscles and epithelial cells, a few fat-cells and pus-cells, now and then peculiar crystalline bodies, and always one or two ciliated epithelial cells still in active motion. W. LAIDLAW PURVES.

REVIEWS.

Free Phosphorus in Medicine, with Special Reference to its Use in Neuralgia: A Contribution to Materia Medica and Therapeutics. By J. ASHBURTON THOMPSON, Surgeon at King's Cross to the Great Northern Railway Company, Surgeon Accoucheur to the Royal Maternity Charity, etc. London: H. K. Lewis. 1874.

This work of Mr. Thompson's is one of those useful monographs published at a time when the attention of the profession is being specially directed to

the use of phosphorus. He has evidently devoted much thought and attention to the subject, and has taken pains to ascertain what others have written upon it: in fact, the history of the employment of phosphorus commencing from its discovery by Brandt in 1669, is one of the most complete we know.

In treating of the pharmaceutical preparation, he shows that the internal administration of free phosphorus may be effected by three methods; by its reduction to a state of subdivision, by its solution, or by the decomposition of a chemical combination of it with a metal within the body. He enters very fully into the various methods of prescribing phosphorus, giving four-and-twenty different formulæ for its administration, and discussing at length the relative merits of each, thus affording to the practitioner many valuable hints and suggestions that may save him much trouble and anxiety in deciding what formula to adopt so as to ensure gaining the full benefit of the drug and avoiding all uncertainty and danger—two of the most important reasons why phosphorus has not been more largely employed.

As regards the absorption of phosphorus, Mr. Thompson seems to think this may be effected in various ways: 1. By its vapour; 2. By the formation of phosphuretted hydrogen; 3. By its solution in hypophosphorous acid formed at its own expence; but chiefly 4. By its solution in the fatty parts of food.

He objects to Lecorché's theory of its mode of action, *viz.*, that phosphorus is absorbed from the stomach as phosphoric acid, and so acts; and holds, with Tardieu and Roussin, that it must enter the blood in the free state to produce its characteristic effects. In support of this view he gives a large amount of evidence that appears to be quite conclusive, and shows that the more perfect the state of reduction in which phosphorus is ingested, the more actively will it exert its powers; and secondly, that the better adapted the solvent is to protect the phosphorus from chemical action in the intestines, the more readily free phosphorus will enter the circulation, always provided that the solvent itself is easy of absorption. These two requirements are best fulfilled by the solution in oil.

In his critical remarks on the various pharmaceutical preparations, Mr. Thompson shows evidence of much original research, and the profession at large cannot be otherwise than indebted to him for 'removing a stigma from a remedy which is at least as valuable as any other in the *materia medica*,' by proving 'that the evil reputation phosphorus has hitherto borne, as a drug treacherously poisonous and of uncertain action, is entirely owing to an imperfect knowledge of its special qualities and properties under varying conditions.' By a careful, elaborate, and exhaustive examination of historical and clinical records, he has shown why phosphorus has been justly regarded as uncertain in action; and that this was all that was necessary to establish the remedy in professional favour, since, notwithstanding it was already acknowledged to be possessed of remarkable therapeutic powers, no one had hitherto demonstrated that phosphorus was a practically useful remedy in the way that he has done in these pages.

He concludes from a number of experiments and observations:

1. That solutions of phosphorus in virgin vegetable oils are not safe, and should therefore be entirely rejected:

2. That the solid form is not a perfectly safe mode of administering phosphorus; it may, however, be employed, but should never be presented to the empty stomach :

3. That the administration of zinc phosphide should be attended by the use of an acid at the same time.

The dose of phosphorus seems to vary considerably with the formula employed. The toxic effects of the drug, such as burning pain in the epigastrium, hepatic pain, tenderness of the gums, nervous symptoms, etc., are all fully described, and should be carefully noticed before attempting to prescribe phosphorus. A large experience of the action of the drug in many and various conditions has enabled the author to point out exactly the earliest symptoms necessitating its discontinuance. 'Apart from any specific power which it may possess, phosphorus may subserve two distinct ends at least, according to the manner in which it is administered. It may stimulate, and it may nourish.' This seems to be an entirely original observation, and one for which he distinctly claims priority.

In cases of typhus, where there is muttering delirium or incipient coma, the stimulating effects of phosphorus, when given in sufficiently large doses, are very marked. Mr. Thompson asserts that it should be given in such cases not by rule, but until the patient either recovers or dies; persons in want of phosphorus being able to take far more with impunity, than those not in want of it.

Of the therapeutic uses of phosphorus the author gives us not merely opinions, but has illustrated his remarks by a series of carefully recorded cases that will well repay perusal. He alleges that he has established, by a series of forty-one consecutive cases, what has been known of isolated cases since the time of Lobel—1805—viz., that phosphorus is curative of some forms of neuralgia (briefly, the ataxic and catarrhal acute). It is in these distressing and troublesome cases, where frequently other remedies have failed, that phosphorus seems to exert such a marked influence, and no one will now be justified in condemning a case as incurable until he has studied this monograph and tried the remedy in the manner suggested.

His remarks on the employment of phosphorus in cases of impotence are worthy of consideration. He asserts that it is not an aphrodisiac except in poisonous doses. Its true function is the removal of the hypersensibility, which is a general cause of the disorder, by elevating the nerve-tone.

The bibliography contains nearly 200 references, which will prove invaluable to all future investigators.

We shall hope to see in the next edition an index for facility of reference. The work as a whole is one of great merit, and does much credit to the author. It will, we feel sure, be welcomed by many as an exhaustive monograph on an agent whose powers have hitherto been but imperfectly recognised, more especially in its influence over that most distressing malady, neuralgia. We can conscientiously recommend the work as one of much value.

Key to Skin-Diseases. Four Charts with Notes. By TILBURY FOX, M.D. Renshaw, 1875.

This little brochure 'for clinical use and for those preparing for examinations' was drawn up for the students of University College; and it is now published, because, as Dr. Fox observes, the student is bewildered for want of a short systematic arrangement

of the principles and essential parts of dermatology. 'I here supply the deficiency. To become acquainted with the contents of the following nine pages is to master the difficulties of the subject.' The difficulty of students has possibly arisen rather from the multitude of 'short systematic arrangements' than from their deficiency; and we fear that they may still meet with difficulties even after acquaintance with Dr. Fox's charts. But we may fairly say that this is the best of such aids to knowledge which has yet appeared. The first of the four general rules (to see the whole of the affected surface) and the last (that there are no peculiar pathological changes in the skin) are excellent and thoroughly 'Hebräisch.' The classified chart is clear, and except in a few details, agrees with the accepted doctrines of modern dermatology. We may perhaps suggest that it is convenient to keep the term *roseola* for rashes (*hyperæmiæ*) without evident exudation, and erythema for those with papular, nodular, or diffuse effusion; and that it is undesirable to use 'tubercle' except in the modern pathological sense of the word. The table of elementary lesions is excellent. That of etiology surely admits far too readily some 'internal causes.' That of therapeutical headings is the most individual, and perhaps, on that account, the most valuable of all.

Catalogue of Artificial Arms, etc. STUMP: London.

Mr. Stump's catalogue of artificial legs, arms, hands and noses is a very useful illustrated list of prothetic pieces, which surgeons and practitioners generally will find very convenient for reference. Every amputation is illustrated by the artificial limbs made for each case, with diagrams for measurement and instructions for the same. The pieces range from those of the most exquisitely finished limbs that ingenuity can devise to meet the exigencies of wealthy misfortune to those suitable for the needs of a working man. Thus there is here under one cover, in an accessible very intelligible form, all the information which the medical man needs on the spur of the moment for answering questions, whether in his work at the hospital, or union, or in treating amputations in his private practice.

MISCELLANY.

ANOTHER DISEASE OF CIVILISATION.—The frequenters of theatres have doubtless observed, with more wonder than admiration, that peculiar evolution of the ballet-dancer which consists in coming down the stage on the points of her toes. This, we believe, is considered the crowning feat of the art of the danseuse, and, like all great achievements, is not attained with impunity. It appears that at a meeting of the Society of Physicians in Vienna, reported in the *Wiener Medizinische Presse*, Dr. Schulz described a new form of disease which hitherto he had observed only in ballet-girls, and which manifested itself in a cramp of the muscles of the calf of the leg. The disease appeared to be similar in its character to writers' palsy, and occurred chiefly amongst those who were in the habit of performing a *pas seul* on the points of the toes. The position indispensable for this feat, which is accompanied by a rigidity of the whole limb, can only be maintained when the foot is supported by a shoe made for this particular purpose. It is satisfactory to learn that the cramp is susceptible of relief, which is afforded by the application of that form of electricity known as faradisation.

SHELL IMPLEMENTS.—M. Barnier, a French engineer, at the head of the copper and silver lead mines at Luchan, near Toulouse, has made some very interesting archaeological discoveries in that locality. He caused a grotto, which seemed to him to present the characteristics of the prehistoric age, to be explored, and found in it fragments of the skeletons of wild beasts and human remains, together with some coarse pottery. But the most interesting discovery consisted of some daggers formed of sharpened bones, and especially some pieces of shells laboriously formed into curved forms pierced with a hole, so that they could be suspended round the necks of their owners, and which were evidently the knives in use in those remote ages. This employment of shell implements is a novel fact, and one which has not yet been observed in diluvian caverns. M. Barnier gives reason to suppose that the extensive plains of Roussillon formerly formed part of the sea.

MALLEABLE GLASS.—The *Kölnische Zeitung*, of March 25, contains the following notes on the recently invented 'hardened glass.' According to the reports of Pliny, Petronius, and Dion Cassius, a man is said to have invented the making of flexible and malleable glass in the time of the Emperor Tiberius. The happy inventor—some call him a glass-maker, others an architect—brought to the emperor a vase made from the new glass, with the hope of a rich reward. The emperor, fearing that the new material might cause a decrease in the value of gold and silver, threw the vase to the ground in a passion. The vase, however, did not break, but was only bent like metal, and the inventor at once repaired the damage done with a little hammer, whereupon the emperor had the poor fellow killed on the spot, so that he should not tell his dangerous secret to any one. For years people have lost themselves in conjectures of what material this malleable glass might have been; some thought it was aluminium, others that it was melted chloride of silver; none, however, were certain. From various quarters the invention is now announced of a new glass which resists blows and the action of fire. Last autumn a company was formed at Bourg, in France, with a capital of 1,200,000 francs, for the working of an invention in this line, made by a M. de la Bastie. The German Glass-makers' Union communicated with this company with a view to purchase the invention, but this remained without further consequences, as the demands of the company were exorbitant. In the meantime it had been found that the elasticity was given to the glass by dipping it, while it is heated to a half liquid state, into a hermetically closed bath of oil or fat, substances therefore which melt far below the boiling-point of water. In Silesia, where repeated experiments have tested the qualities of the De la Bastie glass, another new glass has been invented by Herren Lubisch and Riederer, in Count Solm's glass-works, Andreashütte, at Klitschdorf, near Bunzlau. This glass, which the inventors call 'metal-glass,' is so hard, that when a pane lies on the ground and a leaden ball of forty grammes weight falls upon it from an elevation of twelve feet, it receives not the slightest impression; nor is it in the least affected when dipped whilst red-hot into cold water. Window-panes, lamp-cylinders, and other articles of domestic use made from this metal-glass, can therefore almost be regarded as unbreakable.

DRESS AS A CAUSE OF PELVIC DEFORMITY.—When the body is erect, says Dr. Aveling, in a discussion of this subject in the *Obstetrical Journal* for January, the influence of dress is of sufficient importance to demand careful attention. Attitude depends upon clothing more than is generally supposed. The stooping position, which has been referred to as injurious, is often produced by the peculiar feminine vestimental arrangements at present in fashion. The greater part of the burden of a woman's clothing hangs from the posterior part of her body. All the folds of her skirts are carefully disposed behind, and the swaying influence of their weight here is much increased by the leverage power granted them by the numerous ingenious devices adopted for insuring their

projection backwards from the body. As the balance can only be maintained by inclining the body in the opposite direction to that in which it is drawn, it must necessarily be bent forward to counterpoise this retroverting influence. High heels also throw the body out of its proper balance, producing stooping, relaxation of the abdominal walls, and debased pelvic inclination. But dress, in its strictest sense, has still another potent way of causing mischief—namely, by its weight when suspended from the waist; a weight not inconsiderable in itself, but rendered of much consequence by its persistent action. The bands, from which the garments that women wear hang, are chiefly supported by the abdominal walls and the viscera beneath them. Ultimately, therefore, they must compress the pelvic organs, and cause their downward displacement. As a rule, all vestments should be carried by the shoulders. Long robes, falling from them, and girded at the waist, are the least harmful, if not the most beautiful garments a woman can wear. If, however, it be absolutely necessary that her dress should be divided into two portions at the waist, let her, by all means, adopt some method of suspending the lower half from the shoulders. Braces of a very simple and inexpensive kind, having safety hooks, which may be passed through the bands of the skirts, are now easily obtainable, and their general adoption is much to be desired. The position of the waistband must also be considered, for whether it should be high or low is a point of much importance. The fashion of short-waisted dresses is by far the more healthy. Long waists involve abdominal compression by stays, and that closer contact of bands with the walls of the abdomen which enables the downward dragging weight of skirts to exercise its influence most injuriously. The natural position of a woman's waist is neither high nor low, but in that part of her body which happens to be the smallest in circumference. If fashion would only allow this to be the proper place for the waistband, we should not, as now, have the constriction of stays and the gravitation of garments conspiring in the production of prolapse and its concomitant disorders.

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The London Medical Record.

WEDNESDAY, MAY 12, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

VULPIAN'S EXPERIMENTAL PATHOLOGICAL STUDIES ON THE PHYSIOLOGICAL ACTION OF TOXIC AND MEDICINAL SUBSTANCES.

(Continued from page 273.)

Thanks to the study of physiological action, great progress has been made in the advancement of forensic medicine. As a matter of fact, if there are clearly defined and crystallisable toxic substances, which can be extracted from the viscera of an individual who has died from poison, and which can be placed under the eyes of the judge and jury by an expert, still there are others which cannot be entirely separated. Some of these substances may be recognised by the help of certain chemical reactions; but the physiological test offers a valuable resource to an analytic expert. If it be a case of poisoning, he may thus be able to determine, with a sufficient amount of precision, to what kind of poison the death must be attributed. It is thus that the presence of digitaline, nicotine, nay even of daturine, hyoscyamine, extract of belladonna, extract of Calabar bean, may be suspected, either in the dejections or in the digestive organs. But physiological experiment likewise brings its complement of information even respecting substances which can be recognised by their chemical characteristics. It is thus that experiments on animals will show the existence of a convulsion-producing poison, such as strychnine, in the substances submitted to the examination of the expert. This kind of examination, combined with microscopical, chemical, and physical investigations, is of such utility that it may safely be affirmed that at the present time there is no poison known which can escape juridical research. Nor do therapeutics derive less profit from the physiological action of drugs, for it is by that study that the use of these substances can be regulated, and the indications to which they correspond clearly defined. For instance, it is not enough to know that digitalis has a powerful action on the heart, and can slacken its movements, if it is necessary to know by what mechanism it produces these effects so as to carefully define in which cases of heart-affection digitalis should be taken, and in which its use is prohibited.

The physiological study of the purgatives, by showing that these substances do not all act by an absolutely identical mechanism, may serve as a guide to the prescription ordered; the same thing will also hold good of emetics. The knowledge of the *modus operandi* of chloral has led to its employment in the treatment of certain convulsive affections, such as tetanus, eclampsia, and chorea. M. Vulpian limits himself to these few instances, and adds that if even the study of the mechanism of the effects determined by medicinal substances has not led to any new therapeutic data, it is impossible not to acknowledge the importance for the physician who

is worthy of the name, knowing the reason of the effects obtained by such and such a drug. Researches into the physiological *modus operandi* of medicinal substances have even cleared up certain pathological points; thus it is only since the way in which the extract of nuxvomica and strychnine act on animals was known that a just notion of the pathological physiology of tetanus has been acquired. The great resemblance existing between this affection and strychnism has given cause to believe that tetanus, like the convulsions produced by strychnism, is due to a condition of exaggerated excitability of the grey matter of the spinal marrow and of the bulb. The irritations which set out from the wound (traumatic tetanus) and are conducted to the medulla by the sensory nerves, induce and keep up this morbid condition of the grey matter of the medulla, and give rise to the tonic spasm of the muscles of the jaws, neck, back, etc. The paroxysms of these convulsions are brought on either by the same irritations, or by excitations influencing other sensory nerves. It is a matter of fact that this knowledge, furnished by the comparison between tetanus and strychnism, has guided all the efforts of therapeutics, such as the division of the nerves affected by the wound, amputation of the wounded portion, and the administration of the substances (chloral and bromide of potassium) which weaken the reflex power of the medulla spinalis.

Neither until the effects of nicotine were known had any clear notion been conceived respecting the seat of the modification of the nervous centres which produces the tremblings of paralysis agitans. In experiments on frogs, M. Vulpian found that one of the first effects produced by nicotine consisted in a very remarkable trembling of all parts of the body.

This trembling did not occur in a limb of which the principal nerve had previously been cut; the poison therefore does not act either on the extremities of the nerve nor on the muscles in relation with this nerve. Transverse section of the medulla also prevented the tremblings from becoming evident in those parts of which the nerves originated in the lower or backward segment of this nervous centre. Neither, then, is it by the intermediary of the medulla spinalis that nicotine produces the effects in question. Proceeding to make the experimental research in the opposite direction, M. Vulpian removed successively the cerebral lobes, the optic thalami, the tubercula quadrigemina, and the cerebellum, before introducing nicotine under the skin, and still found that nicotine brought on the same tremblings. But when he removed that portion of the isthmus of the encephalon which corresponds to the pons Varolii of the mammalia, there was an absence of the tremblings. In these cases it was a matter of general tremblings, showing themselves in all parts of the body, and M. Vulpian thinks, without any strained comparison, the datum arising from these experiments may be applied to the pathological physiology of the trembling of paralysis agitans, of senile, alcoholic and even mercurial trembling. It may be inferred that these various sorts of trembling are caused by a morbid modification of certain points of the pons Varolii. Considered from the point of view of general physiology, the knowledge of the physiological action of certain toxic or medicinal agents have given greater facilities than have existed up to the present time for studying the physiological properties of the different parts of the organism. It is thus that curara has given us fresh

indications on the mode of physiological relation which exists between the motor nervous fibres and the primary fasciculi of striated fibrous muscles. It is by thoroughly examining the mechanism of the action of atropine, that the more definite information respecting the moderator or frenator nerves of the head and glands has been acquired, and the study of the accelerator nerves of the heart has also profited by the same researches. It is by the help of this method of experimentation that the first clear indication of the probable existence of nerves having a direct action on the secretions, and therefore having a title to the name of secretor nerves, was obtained. M. Claude Bernard's experiments on the effects of faradisation of the chorda tympani have shown that a hypersecretion of the submaxillary glands is brought on at the same time, and a considerable hyperactivity of the sanguineous circulation in this gland. It is a question whether salivary hyperæmia is due to a true oxidation of the elements of the gland, or whether it is the pure and simple result of the afflux of blood and the augmentation of pressure necessarily produced in the vessels of that organ. Thanks to the labours of M. Ludwig and M. Claude Bernard, it is possible to oppose serious arguments to the hypothesis which wished to explain the exaggerated secretion of the submaxillary saliva by hyperactivity of the intraglandular sanguineous circulation. But the positive proof of a direct independent action of the chorda tympani on the secretory action of the gland was not then acquired; it seems to have been furnished by the study of the action of atropine on the salivary glands. M. Keuchel had ascertained that, in animals submitted to the toxic action of atropine, faradisation of the chorda tympani produced no increase in the flow of the submaxillary saliva.

M. Heidenhain took a step in advance and recognised that if M. Claude Bernard's experiment be repeated in all its details on an atropinised dog, electrification of the chorda tympani no longer produces increase of salivation, but that it still brings on vascular phenomena, that is to say, congestion of the gland and excessive activity of the circulation of blood throughout the gland.

The vascular and secretory effects of the faradisation of the chorda tympani therefore are not linked together in an indissoluble manner. They both depend on the excitation of different nervous fibres, in fact, so different that atropine can abolish the physiological action of some while respecting that of others. It might, indeed, be objected that atropine induces secretory impotence of the gland, by acting on its peculiar qualities, but M. Heidenhain has shown, as will be set forth in another lecture, that the characteristic cells of the gland preserve their functional aptitudes in the atropinised animal. Therefore it is evident that the atropine acts by influence on the nerves. The chorda tympani contains two kinds of nervous fibres: vaso-dilatator fibres, which escape the toxic action of atropine, and secretory fibres, which are paralysed by this poison. The existence of secretory nerve-fibres thus seems placed beyond doubt. This is a fact of the greatest importance, for it applies to the physiology of all the glands, and especially to the accessory glands of the digestive system. It may also be applied, as will hereafter be shown, to physiology and sudoral secretion. The physiological study of poisons and drugs is and can only be an experimental study. The conditions in which experiments are carried on are far

from being unimportant as regards the result of the experiment. As a general rule, the animals to be experimented on should be chosen from those whose organisation does not differ too much from that of man. M. Vulpian's principal laboratory experiments are made on dogs, rabbits, guinea-pigs, and rats, that is to say, on mammiferous animals. But it is not always practicable to conform to this rule. When the movements of the heart are to be studied in this organ laid open to view, it is better to make use of frogs. In the higher animals the great functions of life are intimately connected together, so that any great disturbance or the stoppage of any of them, brings on perturbation or cessation of all others. If the lungs are removed from a dog, the animal inevitably dies directly. It is not so with frogs, the thorax may be opened and all the viscera removed without their dying immediately. The heart of a frog may be laid bare after the removal of its sternum, and the heart-beats may be observed several days after the operation.

Frogs have the advantage over the higher animals of possessing a cutaneous respiration which may sustain a sufficient hæmatosis to keep off asphyxia, when pulmonary respiration is discontinued. Therefore it is possible to institute experiments on curarised frogs, in which pulmonary respiration no longer takes place, even lengthened experiments going on for two, three, or four days and more, which cannot be carried on on mammiferæ on account of the necessity of keeping up an artificial respiration by pulmonary insufflation. Thus it is scarcely possible to study, except on the frog, the ultimate effects of strychnine, that is to say, the state of the different functions during the period of resolution which succeeds strychnic tetanus. On the other hand, it is possible to perform considerable mutilation on frogs, for instance, to remove the whole of the encephalon, or destroy the whole spinal marrow; and these animals thus mutilated may live long enough to allow observations on the action produced by given poisons under similar conditions. Such advantages would, it is true, be useless if the effects of toxic substances were always very different in batrachians and mammalia; there is, however, no difference. Many poisons exercise the same kind of influence on both classes of animals; and certain poisons even have an intensity of action on frogs which makes these animals most valuable for the study of these substances. Thus these batrachians are particularly sensitive to the action of strychnine, of which they are, so to speak, the physiological reagent. This circumstance is of great utility in legal medicine, for a very minute quantity of strychnine extracted from a corpse suffices to produce on a frog the convulsive phenomena characteristic of this toxic agent. It is the same with the other convulsion-producing poisons, as well as poisons affecting the heart, and muscular poisons.

PERRONCITO ON THE REGENERATION OF STRIATED MUSCULAR TISSUE.

At a meeting of the Society of Medicine and Surgery in Turin, on January 13, Professor Perroncito made a communication on the new formation of striated muscular tissue from the pre-existing tissue after injury of its continuity (*Gazzetta delle Cliniche*, January 26).

He begins by remarking that, notwithstanding the results obtained by Gussenbauer with regard to the

formation of new muscular tissue from that already existing, the mode of reproduction has been much disputed, and the opinions on the subject are still very diverse. With the object of elucidating such a very important question, Dr. Perroncito undertook, towards the end of last year, a series of experiments on the muscles of frogs and dogs, and has continued them this year. The following are the results which he has obtained.

In the frog, some days after section of the muscles, he has been able to observe the production, from the contractile substance of the divided ends of the muscular fibres, of a new granular protoplasmatic material, poured out in such a way as to form a prolongation of the old substance of the fibres. These protoplasmatic prolongations are very fragile, and continue to increase in length as time advances, so that after from twelve to twenty days they may attain a remarkable length.

He has also observed a similar behaviour in the muscles of the higher animals. In dogs, forty-seven hours after dividing the muscles, there is seen at the extremities of the divided ends of many of the fibres a new granular very delicate muscular structure, differing from the already existing muscle in being formed of granules and void of striæ. In this there is generally to be seen a proliferation of nuclei, from two to five corpuscles being irregularly arranged in the new substance. The nuclei have an ellipsoidal or roundish form, with a glistening outline and a large nucleolus. The new matter soon assumes a conical form, and is continuous with the old contractile substance of the muscular fibres. It gradually increases in length, forming prolongations sometimes with a sharp, sometimes with a rounded end; the margins are sometimes straight or slightly convex, sometimes irregular and dentate. Sometimes the new substance becomes gradually thinner, presents a wavy appearance, or is placed at an angle with the point terminating in various directions, generally towards the deep part of the wound.

The newly formed prolongations are always enclosed in new connective tissue and in numerous capillaries, which extend as far as the free ends of the protoplasmatic prolongations. Very frequently, at the free end of the cone of new formation, there is observed a kind of exudation, a hyaline material, which is readily tinged by carmine, and sometimes has roundish cells adherent to it. This form of hyaline exudation is seen more frequently and more abundantly in fibres forty-seven hours after section, and sometimes it is directly continuous with the old fibre without the interposition of new muscular protoplasm.

In numerous examinations made four, six, eight, or more days after the section of the muscles, Dr. Perroncito has very rarely seen new cells with the characters of migrated cells lying along the newly formed prolongations. On the other hand, ellipsoidal nuclei of various sizes and in various numbers are constantly present in the new muscular substance. The absence, in most cases, of migratory cells, and the constant presence of nuclei and muscular corpuscles, deprive the former of much, perhaps all, of their importance in the formation of new muscular tissue, while the latter acquire a very great importance. Migratory cells may, by their amoeboid movements, be readily supposed to penetrate the outside of the new contractile substance; but, in this case, their presence is purely accidental.

A muscular fibre at the point of division, or in its

proximity, may produce a various number of prolongations of muscular substance; and this is specially observed in sections made at the end of twenty or more days after the muscle has been divided.

As has already been said, the young prolongations are very delicate, and are readily torn during the manipulations necessary for their examination. For many days they are granular, and it is not until a later period that they present striæ.

These observations Dr. Perroncito regards as comprising those of Gussenbauer (*Archiv für Klinische Chirurgie*, 1871), and also as placing beyond doubt the new formation of muscular tissue in the continuity of divided fibres.

A. HENRY, M.D.

BROWN-SÉQUARD AND LABADIE-LAGRAVE ON AUDITORY VERTIGO.

We have already given an account of Menière's disease in our numbers for April 22 and 29, 1874. The subject, however, is one of such great practical importance that we present an abstract of a recent paper thereon. The reporter has published a case of Menière's disease in the *Lancet*, Nov. 21, and refers to it chiefly to acknowledge an important omission. We ought not to forget the work Brown-Séquard has done on this subject. At page 195, Séquard's *Lectures on the Physiology and Pathology of the Nervous System*, 1860, will be found an account of experiments on the auditory nerve, and clinical observations showing their bearing on practical medicine. Now that Menière's disease is attracting much attention, we shall be excused for reproducing the following. Its reproduction is not unnecessary, as many medical men are very incredulous as to there being any causative relation between ear-disease and vertigo. Before we give the quotations, we ought to say that so far back as 1853 Dr. Brown-Séquard (*Experimental and Clinical Researches applied to Physiology and Pathology*, New York), had shown by experiments that the auditory nerves have a most remarkable power over the nervous centres.

The persistent spasmodic contractions due to a mechanical injury to certain parts of the nervous centres are always curious, but never so much so as when they result from some irritation of a part like the auditory nerve, which we were accustomed to consider simply as a nerve of sense. M. Flourens (*Recherches sur les Propriétés et les Fonctions du Système Nerveux*, 2de éd., 1842, p. 454 et seq.) has found that the section of the semicircular canals in certain animals is followed by a strange disorder of movements, and sometimes by a rotation (circus movement). The reporter has ascertained that the phenomena observed in these experiments do not depend on the section of these canals, as this operation may not cause these phenomena, but that they are the results of an irritation of the auditory nerve from the drawing upon it by the membranous semicircular canals when they are divided. In frogs and in mammals the direct irritation of the auditory nerve is followed by the most interesting phenomena. It is well known that in frogs the peripheric extremity of this nerve is enclosed in a bag containing carbonate of lime. As soon as this bag is laid bare and slightly touched, and still more if it be punctured with a needle or a bistoury, the anterior limb, on the opposite side, is thrown into a state of slight convul-

sion, and kept almost constantly in a spasmodic pronation; and almost at every attempt to move forwards the animal turns round on the side injured. As long as it lives (many days, or even many months) these phenomena may be observed, although not quite so marked as immediately after the injury, or after the first twenty-four hours. In mammals, the least puncture of the auditory nerve causes rolling, just as after the irritation of the processus cerebelli ad pontem; violent convulsions then occur in the eyes, the face, and many muscles of the neck and chest. The doctrine that the nerves of the higher senses are not endowed with general sensibility (*i. e.*, are not able to cause pain) seems not to be true with regard to the acoustic nerve; at least, the signs of pain given after an irritation of this pretended nerve are often as great as those observed after an irritation of the trunk of the trigeminal nerve. In man also the auditory nerve seems to be able to act as it does after an injury in animals. 1. Any one who has received an injection of cold water in the ear may know that it produces a kind of vertigo, and that it is difficult to walk straight for some time after this irritation. 2. A sudden noise makes the whole body jump, particularly in old people, or in persons attacked with anæmia, chlorosis, epilepsy, chorea, hysteria, hydrophobia, and in certain cases of poisoning; in a word, in all circumstances in which the control of the will over reflex actions is lost or diminished. 3. Vertigo and various convulsive movements, in cases of irritation of the acoustic nerve,* have been observed in adults and children. Rotatory movements have taken place in cases of suppurative inflammation of the ear, and twice immediately after an injection of a solution of nitrate of silver (see the case of Professor Burggraeve, recorded by himself.† A most eminent military man, we are told, has twice been seized with rotatory convulsions after injections in the ear. Quite recently Mr. Hinton has read a paper to one of the London medical societies, in which he relates several cases of convulsions in children without any other visible alteration after death except in the ear. We could point out several other facts to prove that irritation of the auditory nerve may cause vertigo, rotatory movements, and various other kinds of convulsions; but we think we have said enough to call the attention of practitioners to this subject, and this was our principal object. We will only add a few words more to say that the causes of rotatory movements are numerous, and that besides the one which is the principal in most cases (and that is the spasm produced in some muscles, as has been already said) there is a cause similar to that of simple vertigo, depending upon anæmia, or generated by an irritation upon some centripetal nerve (as for instance, in cases of gastralgia), and producing a contraction of some blood-vessels of the brain, by a reflex action, and this cause is the insufficiency of blood and the consequent alteration in the nutrition of certain parts of the brain.

The literature and current knowledge of this subject are succinctly presented by Dr. Labadie-Lagrave, in some recent articles in the *Gazette Hebdomadaire*. In a brief historical *résumé* it is shown that, although isolated cases had been reported long ago by Vieussens, and by Itard, Toynbee, and others, it was

not until the laborious researches of Menière that auditory vertigo was recognised as a distinct disease. Since then it has received full attention from numerous investigators, amongst whom may be mentioned Trousseau, who proposed the title *vertigo ab aure læsa*; Duplay, who named it Menière's disease, a name subsequently adopted by Charcot, Hillairet, Politzer, Voltolini, Knapp, Hinton, and many others. The author insists that, although the disease derives its name from Menière, it is not to be forgotten that it is to the experiments of Flourens that we owe a rational explanation of the dependence of the symptoms on the labyrinthine lesion.

The outset is sudden. An individual in the midst of perfect health, and without appreciable cause, is seized with confusion, headache, tinnitus, and vertigo. His gait is uncertain and stumbling; when he rises objects seem to turn round him; he staggers as if the ground sank beneath his feet. He cannot keep his balance without support, and he executes involuntary movements which impel him in a certain direction. At the same time his hearing is affected; sometimes he can only hear certain sounds. The noises in the ears are very pronounced. He seems to hear the sound of an orchestra, ringing of bells, the rushing of a cascade, or the whistle of a locomotive. Charcot dwells on the intimate relation which exists between the sudden development of noises in the ears, or the sudden exacerbation of these noises, and the onset of the vertigo. Though tinnitus is a common accompaniment of various kinds of vertigo, its intensity and predominance from the very first are characteristic of Menière's disease.

The face is pale, the forehead bedewed with sweat, the skin cold. Then occur nausea and vomiting, which usually indicate the termination of the attack. The patient can obtain relief only by observing absolute rest in the horizontal position. There is no affection of speech, no spasm of face or extremities. Menière once saw spasm of the face, followed by incomplete hemiplegia (on the same side as the affected ear), which disappeared in a few days. There is never tingling, numbness, nor any sensation analogous to an aura. These symptoms pass off after a variable time, and reappear sooner or later, each attack increasing the tinnitus and deafness, until the hearing is wholly lost.

The pathological conditions which give rise to auditory vertigo are sufficiently numerous, and some of them at least can be distinguished by the symptoms. In detail they are: 1. Vertigo from traumatic irritation; 2. Vertigo from galvanic excitation; where the electrodes are applied to the mastoid processes the head turns towards the positive pole; 3. Labyrinthine vertigo from internal otitis; of this the author distinguishes three kinds; 4. Vertigo from disease of the middle ear; 5. In rare instances vertigo occurs from obstruction of the auditory meatus; 6. Reflex vertigo; in some persons the access of a drop of water to the membrana tympani brings on a violent attack of giddiness.

Taking otitis labyrinthica as the lesion which gives rise to the most characteristic symptoms, the author proceeds to treat of these latter in two groups, according to the two divisions of the auditory nerve. The vertigo, the sense of rotation or the actual rotation, with their accompaniments, staggering, weakness, pallor, sweating, nausea, vomiting, and headache, are due to lesions of the semicircular canals. On the other hand, the tinnitus, and the gradual and

* Walter and Lincke, quoted by Harless in article 'Hören,' in *Wagner's Handwörterbuch der Physiol.*, vol. iv. 1853, pp. 420, 423.

† *Gazette Méd. de Paris*, 1842, p. 25.

finally complete loss of hearing, are owing to alterations of the cochlea.

To explain the deafness for certain sounds, the author adopts the hypothesis that a limited portion of the cochlea is injured in such cases; and that, as the injured fibres no longer vibrate in response to their corresponding sounds, no impression of these sounds reaches the nervous centre. JHS

ANATOMY AND PHYSIOLOGY.

GRUENHAGEN ON VARIATIONS IN THE SIZE OF THE PUPILS AT DIFFERENT TEMPERATURES.—

At the session of the Königsberg Verein für Wissenschaftliche Heilkunde, held on March 23, 1874 (*Berliner Klinische Wochenschrift*, January 11, 1875), Herr Gruenhagen made some remarks on the influence of temperatures between 0° and 37° Cent. (32° and 98.6° Fahr.) on the size of the pupil; and explained the reasons which led him to attribute the varying diameters of the pupil not to contractions or relaxations of the sphincter pupillaris, but to swelling or shrinking of the non-muscular portions of the iris. [See Schur, On the influence of light, heat, and other agencies on the iris; Henle and Pfeuffer's *Zeitschrift für rat. Med.*, Band xxxi. p. 373.] In accordance with this, the marked dilatation of the pupils in some mammals, particularly cats, at 37° Cent. (98.6° Fahr.) is to be regarded as a consequence of a loss of water; whilst myosis at 9° to 25° Cent. (48.2° to 77° Fahr.) is regarded as the consequence of absorption of water, occurring in the parts of the iris mentioned above. The at first sight apparently paradoxical opinion, that animal tissues lose water at 0° Cent. (32° Fahr.) may be confirmed by the familiar observation that many saline solutions begin to exhibit a separation of the salt from the water at this temperature; and by the fact that the albuminous solution of the fibres of the lens of the cat's eye becomes turbid by the formation of vacuoles at 0° Cent.; and again, that at or near this temperature some animal tissues undergo alterations of their physiological functions exactly analogous to those produced by desiccation, or loss of water in the same tissues. For instance, one sees in the muscles both of the living frog, and in those of the frog killed by woorara, that the muscular irritability of the voluntary muscles, as evinced by mechanical irritation, is much increased after cooling to 0° Cent. (32° Fahr.). Whilst the muscles of the frog at ordinary temperature must be pinched rather forcibly to excite contractions, a very slight touch suffices to excite manifest movements in those cooled to 0° Cent. This condition soon vanishes at ordinary temperatures of the air, but returns on fresh cooling. A similar condition occurs when the muscles of a frog are gradually dried. A frog's hinder extremity skinned, and exposed to a summer temperature of 20° to 25° Cent. (55° to 77° Fahr.), becomes after five or six hours so sensitive to mechanical stimuli, that slight stroking with the finger suffices to throw the muscle touched—and, in consequence of its movements, all the neighbouring muscles—into a state of tetanus. Such contractions, however, do not occur spontaneously. Similar phenomena occur in the frog's nerves by cooling to 0° . In conjunction with Herr Samkow, it was found that immersion of fresh sciatic nerves in neutral fluids at 0° to 2.5° Cent. (32° to 36.5° Fahr.), such as 0.6 per cent. salt solutions, oil of poppies,

and even distilled water at the freezing-point, constantly induced long-continued (two to four minutes) clonic contractions of the muscles supplied by these nerves. It seemed indifferent whether the nerves were suddenly cooled from 15° Cent. (59° Fahr.), or from 38° or 40° (100.4° to 104° Fahr.) to freezing-point. These contractions vanished immediately when the excited nerve was exposed to the medium temperature of the room, or to a temperature of 100.4° , and returned on renewed cooling; but not in the case where the nerve had been exposed to a temperature of 40° Cent. (104° Fahr.), which in itself seemed to predispose to powerful clonic contractions. Nerves thus cooled to freezing-point were uncommonly sensitive to mechanical irritation. Nerves partially desiccated exhibited similar phenomena. Gruenhagen remarks that, if he could succeed in bringing the nerve-centres, such as the spinal cord, into a similar state of tension [*Spannung*] by cooling them down, like the nerves and muscles, the nature of rheumatic tetanus would be elucidated; and he points out that a demonstration of the great mobility of the molecules of water helps to explain the variations in the 'tone' of the tissues. The affinity of the tissues for water gives a new source for the development of electric power, since galvanic currents are caused by the swelling of animal tissues (animal membranes, lit. *Blase*), which are not the same as Quincke's 'diaphragm-currents.' The direction of these imbibition currents [*Quellungs-Ströme*] is constantly such that the surface of the animal tissue, at which the absorption or imbibition of fluid begins, becomes positively electric. Accordingly, if the extended and well-dried gastrocnemius of a frog, with the tendo Achillis and a part of its belly, be moistened in distilled water, and a transverse section be made just above the level of the water by means of a section-knife, and the transverse and longitudinal sections be brought into momentary contact, a rather strong imbibition-current is induced, scarcely inferior in intensity to the ordinary muscular current. These artificial muscular currents, like the natural ones, pass from the longitudinal section to the transverse one towards the needle of the multiplier, and in other ways are regulated by the laws of currents in a muscle at rest.

[Drs. Brown-Séquard, Budge and Waller, and Dr. Letheby long ago enunciated somewhat similar views; but the experiments of the first three were made on eyes removed from the animal after death, whilst Dr. Letheby's, if we mistake not, were founded on experiments made with belladonna.—*Rep.*]

WICKHAM LEGG ON A SINGULAR EFFECT OF LIGATURE OF THE BILE-DUCT IN ANIMALS.—In the *St. Bartholomew's Hospital Reports* for 1873, vol. ix. p. 175, and in a reprint from the *Archiv für experiment. Pathologie und Pharmakologie*, Dr. J. W. Legg draws attention to a curious effect of ligature of the bile-duct, first observed by him during a series of experiments on animals intended to elucidate the pathological histology of the liver. It has been noted for some time, that after previous puncture of the fourth ventricle, poisoning by phosphorus prevents sugar from being found in the urine. Dr. Legg obtained a similar result on puncturing the fourth ventricle of an animal whose bile-duct had been ligatured six days before. This induced him to make fresh experiments. He began with six rabbits, but they succumbed to the operation too soon to allow further experiment. Cats were next selected;

the procedure adopted being to first tie the bile-duct, and then, after five or six days, to feed the animal with milk, or milk with cane-sugar. It was then placed on Czermak's rabbit-holder, chloroformed, and an incision made over the occipital protuberance. Bernard's chisel was introduced immediately behind the protuberance; after boring through the bone, the chisel was pushed forwards and downwards, till it cut the line joining the two auditory meatus; it was then cautiously withdrawn. Then the cat was removed to a warm place, and an hour afterwards the urine was squeezed out of the bladder, and Trommer's test applied. In four successive trials no sugar could be detected; although in four other healthy cats, in whom the bile-duct was not tied, glycosuria was induced by a similar puncture of the fourth ventricle.

W. BATHURST WOODMAN, M.D.

WATSON ON A PHARYNGEAL DIVERTICULUM.—In the current number of the *Journal of Anatomy and Physiology*, Professor Watson records an extremely rare, in fact, an apparently unique occurrence of a diverticulum connected with the pharynx. This was found in an adult male human subject. Beneath the deep cervical fascia covering the anterior triangular space, on the right side of the neck, a muscular tube was seen to extend from beneath the tendon of the digastric muscle, which crossed it superficially, as far as the interclavicular notch of the manubrium sterni. This structure, at its proximal end, communicated with the pharynx just above the level of the stylo-pharyngeus muscle, by a narrow slit-like orifice in the free margin of the posterior pillar of the fauces, immediately behind the tonsil; while distally it terminated in a dilated *cul-de-sac* containing a quantity of grumous material. The tube intervened, in fact, between the stylo-pharyngeus muscle and the glosso-pharyngeal nerve—structures which, in the normal disposition of the parts, are closely applied to one another. Its vascular supply was derived from the occipital and inferior thyroid arteries, while its nerves were contributed by the glosso-pharyngeal. Histologically it was composed of only two coats—an internal tough mucous lining, resembling that of the œsophagus, and a layer of longitudinal fibres, mostly of red striated muscular tissue; circularly arranged fibres, such as are found in other portions of the digestive tract, being altogether absent. As regards the teratology of this abnormality, the position of the pharyngeal opening points to some modification in the closure of the first postmandibular cleft of the embryo.

J. C. GALTON.

MEDICINE.

DUMENIL ON UNILATERAL PARALYSIS OF THE VELUM PALATI OF CENTRAL ORIGIN.—Dr. Dumenil (*Archives Générales de Médecine*, April, 1875) draws attention to this symptom which, he observes, has hitherto possessed rather a physiological than a clinical interest, but which, he adds, should be traced to the different conditions giving rise thereto.

This symptom, according to Dr. Dumenil, is to be regarded as by no means uncommon, since he can himself collect at least a dozen examples. It has been spoken of as deviation of the uvula—an incorrect expression, inasmuch as it conveys the idea that the presence of this inclination is sufficient to show the presence of paralysis. It has been observed by Debrout that the uvula is inclined more or

less from the middle line in many individuals, and hence the diagnostic value of this deviation is destroyed. There is, however, Dr. Dumenil points out, a more sure indication to be found in the unsymmetrical condition of the two halves of the isthmus of the pharynx during muscular action. The two halves when at rest will appear to be alike, but when, by touching the fauces, muscular contraction is excited, the asymmetry is evident. On the healthy side, the normal movements take place, on the other the parts remain without change. Dr. Dumenil adds that this is not a mere anomaly; he has verified the observation many times. It is not to be confounded with the results of paralysis of the facial.

A series of twelve cases is given in two categories: 1. Unilateral paralysis of the velum palati without appreciable paralysis of the facial muscles; 2. The concurrence of paralysis of the velum with facial paralysis.

The question arises in the mind of Dr. Dumenil whether the nervous filaments which supply the muscles of the velum palati have a distinct origin, or whether the pathological condition is restricted to a few filaments so closely adjoining that they may almost be regarded as having a common origin. The author further draws a comparison between the form of paralysis and that of the iris, which is observable in general paralysis, and which is undoubtedly of grave diagnostic import.

The value of this form of paralysis in diagnosis is fully borne out by the histories of the cases that accompany this essay by Dr. Dumenil; our space forbids their more extended notice. The lesion appears to be one of frequent occurrence, and one, the author remarks, that has not been recorded sufficiently often because it has not been carefully looked for. Dr. Dumenil takes the precaution to observe that he does not regard every unilateral paralysis of the velum as being of central origin. He eliminates lesions of the facial nerve in the aqueduct of Fallopius as one of the causes, which is readily distinguished by the effect of electricity. At the same time he points out that this last form of paralysis may be coincident with a central lesion. In one case, Dr. Dumenil states that he found the nerves of the velum destroyed by syphilitic ulceration of the parts.

The author does not proceed further to develop the diagnosis of different forms of facial paralysis; he contents himself with having brought into prominence what he considers to be a very important symptom of lesion of the nervous centres.

W. B. KESTEVEN, M.D.

GRAS ON MICROSCOPIC EXAMINATION OF BLUE LINES ON THE GUMS SUPPOSED TO BE DUE TO LEAD-POISONING.—*La Revue Médicale* for April 12, 1875, quotes a paper by Dr. Gras on this subject from the *Archives de Médecine Navale*. He insists strongly that the lead-line is no mere deposit of that metal in or on the epithelial cells or connective tissue of the gum. It is due to a transformation of a soluble salt of lead into a sulphide of that metal during the slow circulation of the blood in the very minute capillaries of the gum. He says the demonstration is exceedingly simple, and almost painless. When we are in doubt whether a given blue-line on the gum be due to lead or not, we should excise a fragment of the gum containing the line with a fine sharp scalpel or the point of a lancet, wash it with a camel's hair pencil, and add a drop of glycerine; if necessary, flatten it out with needles, and examine it

under the microscope with a low power. If the line be due to lead, in the midst of the normal tissues of the gum, we shall find capillaries injected, filled and obstructed by blackish granules. These capillaries are in loops, or semicircular, or like double hooks, the outlines varying somewhat according to the section. In very old lead-lines the capillary walls are less evident, and their outlines somewhat indistinct. If a piece of buccal mucous membrane be excised, we should use carmine with glycerine, and a little dilute acetic acid, which shows the mucous papillae, and the capillary network. He suggests that in fatal lead-colic, the intestinal capillaries and the nerves of the solar plexus should be examined in the same way for lead. [The Reporter does not know to whom the credit of the suggestion belongs, but it has long since been proposed to examine the lead line by a simple microscope, or in other words a one or two inch biconvex lens; when, if in the capillaries, as the true lead line is, it will be seen clearly to be dotted, and to follow the course of the vessels. It will thus be seldom necessary to remove any of the gum in the living subject, though after death this suggestion of M. Gras may doubtless be of considerable use.] W. BATHURST WOODMAN, M.D.

DARBY ON A CASE OF TRAUMATIC EPILEPSY GREATLY BENEFITED FROM OPERATION. — Mr. Cline, it is well known, cured two cases of epilepsy resulting from injury to the head, by the use of the trephine; and the late Professor Dudley, of Lexington, reported (*Transylvania Journal of Medicine*, vol. i. 1828; see also *American Journal of Medical Sciences*, vol. ii. p. 489, 1828) three cases of epilepsy arising from the same cause successfully treated by the same operation. More recently Dr. John T. Darby communicated to the New York Neurological Society (*Psychological and Medico-Legal Journal*, February, 1875) another case greatly benefited by the same treatment. In this instance the manifestation of epileptiform convulsions occurred ten years after the injury (a kick on the head by a mule), and the operation for relief was performed in the thirteenth year succeeding the accident. Several similar cases were related by members during the discussion of Dr. Darby's paper.

W. KESTIVEN, JUN.

RECENT PAPERS.

Clinical Lecture on Cerebral Disturbance in Uraemia. By Dr. C. J. Nixon. (*Irish Hospital Gazette*, May 1.)
On Tuberculosis. By Dr. Hertzmann. (*The Clinic*, April 17.)
Hæmatinuria. By Dr. Warburton Begbie. (*Edinburgh Medical Journal*, May, 1875.)
On Pharyngo-Laryngeal Miliary Tuberculosis. By Dr. Isambert. (*Annales des Maladies de l'Oreille et du Larynx*, May 1.)

SURGERY.

LANDI ON A CASE OF LIGATURE OF THE INTERNAL ILIAC ARTERY FOR WOUND OF A BRANCH OF THE GLUTEAL.—Dr. Landi (*Lo Sperimentale*, January and February, 1875) first comments on Bouisson's work,* and states that that author reported only four cases of ligature of the gluteal, one of the sciatic, and four of the internal iliac artery; while

Porta, who published his great work in the same year as Bouisson, collected twelve cases of ligature of the latter artery. To these Dr. Landi adds eight others, all (with the exception of two performed in America) operated on by Italian surgeons—Toracchi, Cianfione, Coluzzi, Gallozzi, Porta, and himself.

He first classifies the ligatures of the gluteal artery. It was tied four times for hæmorrhage, twice in cases cursorily noticed by Velpeau and by the American surgeon-general, and twice in cases by Baroni and Bouisson, of which a full account is given. Then follow two well-known cases in which the same artery was tied for traumatic aneurism—Murray's case and Carmichael's. Of these six cases, four were successful. Murray's case was fatal. The issue of the American case is not known. Then follow three cases of ligature of the sciatic for traumatic aneurism—John Bell's, Syme's, and Sappey's.* The two former were successful. In Sappey's case the disease recurred, and the patient was treated by Nélaton with perchloride of iron injection, and, it is believed, with success.

From the history of these cases, Dr. Landi concluded that the diagnosis of the exact vessel affected in traumatic or spontaneous aneurism of the buttock is often difficult, and that other mistakes are very probable, between aneurism and abscess, or erectile tumour or cancer; that it is by no means a certain indication in voluminous aneurism of the buttock to tie the affected artery by opening the sac, an operation which may be extremely difficult, and is very uncertain and dangerous; and that in small aneurisms in this region, the best method is to tie the affected artery on the method of Anel by the operative proceedings which Bouisson has described.

After having discussed the cases in which the gluteal and sciatic arteries have been tied, he then turns to those in which the internal iliac has been operated on. We pass over the observations he makes on the twelve cases referred to by Porta, of which the original case (of Stevens) is the only one the history and *post mortem* appearances of which have been adequately related. Next we have the accounts, as far as they are published, of the five Italian cases which preceded his own (one of which, that operated on by Professor Porta on a mistaken diagnosis, was recently referred to in our columns), and the few particulars preserved as to the two cases operated on in America; and then he details the case on which he himself operated. The operation was performed on account of repeated arterial hæmorrhage from a wound of the nates, which was believed to come from a branch of the gluteal artery (though the wounded artery could not be exactly discovered at the *post mortem* examination), and which proved fatal, on the seventeenth day after the operation, from pyæmia. The wound had been suppurating for some time; and the patient had had rigors and other bad symptoms before the operation. Out of these last eight operations, only one terminated successfully.

Then follows a long and able discussion on the indications for the ligature of the internal iliac artery, an operation which this author believes to be preferable in certain cases, contrary to the opinion of Bouisson and Broca, who prefer in all cases the ligature of the affected vessel, either by the method of Anel or of Antyllus, as the case may be.

The cases in which it is better, in Dr. Landi's

* 'Mémoire sur les Lésions des Artères fessières,' etc. M. Bouisson, *Tribut à la Chirurgie*.

* Bell's and Syme's are usually regarded as operations on the gluteal artery, and to judge by the reports of the cases correctly so.

opinion, to tie the internal iliac, are those of very voluminous aneurism, in which it is doubtful whether it would be possible to find the artery, and in which, indeed, the arterial orifice may be within the pelvis; and those of extensive sanguineous infiltration (so-called 'diffuse aneurism'), or sanguineo-purulent collections, in which, from the alterations of the parts, the uncertainty as to the seat of the injury, and the grave condition in which the patient is, it seems useless to attempt to find the wounded vessel.

[This paper is a very valuable one; and is especially useful to an inquirer into this part of surgery, as containing the details of several cases which, being published in Italian journals and works little known in this country, are hardly accessible here. It does not contain, as the author seems to have intended, all the cases which have been published up to the present time; nor, indeed, is it possible for any statistical writer in the present day to pick up all the cases of any given kind which are to be found in the periodicals of various countries. If the author had consulted Fischer's treatise in the 11th vol. of Langenbeck's *Archiv*, and the other authorities referred to in the lecture by the present compiler, which is abstracted in the *Archives Générales de Médecine* for March, 1875, he would have found several other cases of each kind which have escaped his research. But this is a matter of very minor importance, since, after all, if the statistical part of a paper of this kind were even absolutely complete at the moment of its publication, it would probably not be so when some years afterwards it is made the basis of fresh researches. The only important questions are whether the cases collected together are numerous enough and sufficiently typical to afford the materials for a judgment; and whether the judgment is correct. On both these points the present writer is most happy in being able to agree with Dr. Landi, and is glad to find that the conclusions at which he arrived independently in the above lecture are supported by an author of so much research, and who has had the opportunity of treating one of these rare and most dangerous cases. The absence of any distinct discussion of the methods of treating these aneurisms by compression of the aorta or common iliac, by galvano-puncture, or by coagulating injections, is perhaps to be regretted. In other respects Dr. Landi's conclusions agree pretty closely with those of the present writer, which it may be permissible thus to state again, as given in the *Archives Générales*.

1. Traumatic or spontaneous aneurisms in the buttock are favourably circumstanced for the treatment by gradual or rapid pressure on the aorta or common iliac.

2. If this treatment be insufficient by itself, it may be assisted by coagulating injections or galvano-puncture, performed while the patient is narcotised and the circulation commanded.*

3. If such treatment fail, the method of Anel, or that of Antyllus, should be selected if the tumour be entirely outside of the pelvis.

4. And in other cases the ligature of the internal iliac may be practised; but it ought not to be undertaken till all other treatment has failed.—*Rep.*]

T. HOLMES.

* I meant by this word 'commanded by pressure.' The reporter in the *Archives Générales* has misunderstood it, and has translated it 'régularisé par l'administration de la digitale.'—T. H.

MORTON ON STATISTICS OF AMPUTATIONS.—In the *American Journal of the Medical Sciences*, for April, 1875, Dr. Morton gives the results of amputations performed at the Pennsylvania Hospital.

Of the 152 amputations on 151 patients performed during the five years from 1870-1874 inclusive, 41 died, or 27 per cent.

One hundred and sixteen were primary (1 double amputation). Of this number 81 were cured; 34 died, or 29 per cent.

Five were secondary. Of this number 3 were cured; 2 died, or 40 per cent.

Twenty-nine were for chronic diseases. Of this number 23 were cured; 6 died, or 26 per cent.

Of the thigh amputations 8 were primary, 7 died; most of these were practised in cases of very severe injury; 8 were pathological (chronic), 1 died. Of the leg amputations, 35 were primary, 14 died; 11 were pathological, and of these 4 died.

Fifty-six of the amputations were of the upper extremity; of this number 9 died, or 16 per cent.

Ninety-six of the amputations were of the lower extremity; of this number 32 died, or 34 per cent.

It is observed that the smallest number of deaths occurred in January and November when the hospital wards have pure but heated air by forced ventilation, while in the months of May, June, July, and August, when ventilation is by open windows the largest number of deaths is found. Unfortunately, however, the author has only given the number of deaths in each month; a statement which is of little value from there being no percentage return of the deaths as compared with the recoveries during the periods referred to. On the face of the report, it is possible that fewer amputations may have been performed during the winter months.

Not a single case of pyæmia had occurred in the hospital during the last six months. The author adds in a note that the managers of the hospital have appointed an 'officer of hygiene,' who is required daily to examine and report the condition of every part of the hospital. GEORGE W. CALLENDER.

MASSEI ON THE REMOVAL OF A GROWTH FROM THE LARYNX WITH THE AID OF LOCAL ANÆSTHESIA.—Dr. Massei reports a case, in *La Clinica* of March 31, in which he removed a papillomatous growth from the larynx of a lady, aged thirty-two, who had suffered from aphonia for five months. The growth was multiple, the greater part springing from the free border of the right vocal cord, and occupying the anterior commissure of the vocal cords; whilst two or three vegetations, about the size of hemp-seeds, were disseminated over the anterior third of the left vocal cord. The throat being so irritable that Dr. Massei was unable to operate in the ordinary way, he determined to make use of local anæsthesia, and accordingly commenced at 9.30, on February 21, by pencilling the interior of the larynx with pure chloroform. This caused slight gidiness, which was relieved by an ammoniacal draught. At 11 the larynx was pencilled with a saturated solution of morphia, which was well tolerated; chloroform was again applied at 12.30, and morphia at 2. Notwithstanding this persevering treatment, at 2.30 anæsthesia was not established; further repetitions of the anæsthetics were made at short intervals, but still at 3.30 the desired result was not completely obtained. The patient, however, was tired of the anæsthetic treatment, and Dr. Massei proceeded to operate. It was found that, though

complete anæsthesia had not been produced, the sensibility of the larynx had been greatly diminished, and Dr. Massei succeeded in removing the growths with forceps comparatively easily. The following day the voice was found to be perfect, and there remained only slight hyperæmia of the left vocal cord. [This case is interesting, as illustrating both the advantages and the difficulties of producing anæsthesia of the larynx. This auxiliary is frequently employed by Schrötter, of Vienna, and Labus, of Milan, but is seldom used by other laryngoscopists. —*Rep.*]

MORELL MACKENZIE, M.D.

ROBERTS ON A NEW MATERIAL FOR FIXED DRESSINGS.—Dr. John B. Roberts, in a report of a clinical lecture at the Pennsylvania Hospital, states (*Philadelphia Medical Times*, February 13, 1875) that after experimenting with various kinds of fixed dressings, Dr. R. J. Levis seems to have arrived at one which fulfils all requirements; being cleanly in its application, drying with sufficient rapidity, removable without difficulty, exceedingly light, and withal very cheap. The fixed material is ordinary glue, with which oxide of zinc has been incorporated, either by the manufacturer or by the surgeon at the time of using it, in order to cause it to harden rapidly. Several pieces of flannel—old blankets or worn-out underclothing answering the purpose admirably—are selected and cut to the requisite size. One of these is laid around the limb, and the two edges are tightly stitched together along the anterior surface, allowing the edge to project above the seam; then the melted glue, with oxide of zinc, is painted upon this with a brush. The dressing may be strengthened by an additional layer of flannel or blanket saturated with the glue and oxide of zinc, and made to adhere to the underlying layer. A third or even a fourth layer may be thus applied, if it be deemed necessary, and the limb supported until the dressing dries, which requires from four to eight hours. The stitches of the seam on the front of the limb having been cut with scissors, the edges of this elastic case are sprung apart, and the dressing removed. The edges are then trimmed smooth, and a number of eyelets inserted, in order that the case may be laced like a shoe, and the degree of pressure regulated. This fixed fracture-apparatus is exceedingly light, is made from materials almost everywhere obtainable, and is much cheaper than the silicate dressing. There are at all times pieces of waste flannel or cloth about a large hospital which can be appropriated, while the glue and zinc could probably be supplied at a very low price per pound, in quantity sufficient for the manufacture of many such splints. Another advantage is its elasticity, which permits removal without endangering the splint, for it can be pulled apart, and immediately springs into place around the limb to which it has been moulded. By a little care and dexterity in stitching on the layers of flannel, the surgeon can readily shape the dressing so that both the leg and the foot are completely encased.

MODESTIN ON SPIDER-BITES.—In four cases of bites by spiders observed in Dalmatia by Dr. Modestin, and reported in the *Giornale della Reale Accademia di Medicina di Torino*, 1874, and *Gazzetta Medica Italiana Prov. Venete*, January 9, 1875, appearances of poisoning similar to those which accompany the bite of venomous serpents were present. In the case of a woman, aged thirty-six, five months advanced in pregnancy, and who

was bitten on the right lip of the vulva, there were sweats, cramps in the muscles of the back and abdomen, with suppression of the urine and fæces. These symptoms lasted two days, and were treated by a mixture of camphor, gum arabic, sugar and vinegar. The symptoms disappeared under this treatment, followed by a purgative. An exanthema, similar to measles, appeared at the end of a week, and was quickly cured without leaving any traces.

RECENT PAPERS.

- On Circumcision. By M. Saint-Germain. (*La France Médicale*, April 3 and 17.)
Retention of Urine with Puncture of the Bladder. By M. Gosselin. (*France Médicale*, April 28.)
Practical Remarks on Operation for Hare-Lip. By Dr. Delore. (*Bulletin Général de Thérapeutique*, April 30.)
Case of Cancer of the Tongue. By M. Demarbourg. (*L'Union Médicale*, May 1.)
Conservative Surgery. By Dr. Macdougall. (*Edinburgh Medical Journal*, May, 1875.)
Lithotomy in the Service. By Surgeon-Major W. Curran. (*Ibid.*)
On the Symptoms and Structure of Polypi of the Rectum. By Dr. Bathurst Woodman. (*Medical Press and Circular* May 5.)
On the Intestinal Suture in certain Strangulated Herniæ. By Dr. E. Bœckel. (*Gazette Médicale de Strasbourg*, May 1.)

MATERIA MEDICA AND THERAPEUTICS.

LITTLE ON THE TREATMENT OF SCARLATINA.—The *Dublin Medical Journal* for April contains two papers on this subject, based on experience gained in the epidemic which prevailed extensively in the Irish metropolis last year. One of these papers is by Dr. Little, the professor of medicine at the Royal College of Surgeons of Ireland, and the other by Dr. Wynne Foot, of the Meath Hospital.

Dr. Little considers that scarlatina is, of all diseases, the one in which it is most necessary to abstain from the administration of drugs, unless there is a very distinct indication for treatment, and that the ordinary treatment by chlorate of potash and tincture of the perchloride of iron is not only useless, but sometimes even injurious. The mere act of swallowing these drugs is painful, and Dr. Little thinks that they are apt to cause gastric catarrh, sickness, and diarrhœa.

When there is severe inflammation of the tonsils, and much offensive secretion in the throat, Dr. Little applies locally twice daily, or in bad cases more frequently, on a large soft camel-hair brush, a mixture of one part of glycerine of carbolic acid in two of water. The sucking of ice he does not consider beneficial, as it entails frequent painful acts of deglutition.

When there is much restlessness and sleeplessness, with delirium, Dr. Little thinks that bromide of potassium is useful, together with the application to the legs of flannels wrung out in mustard and water; or if the temperature be high, tepid sponging and cutting the hair close; even in the case of young women this latter proceeding does no harm, as the hair commonly comes off during convalescence. When there is much heat of head he applies also leeches to the temples and ice to the scalp.

When there is sleeplessness without marked heat of skin, he thinks opium useful and more reliable than chloral. If there be any symptoms of renal

congestion, or much swelling or secretion about the throat, opiates are of course inadmissible.

When instead of wakefulness there is screaming and grinding of the teeth, with injected eye and a condition approaching coma, tea and coffee are the best remedies. In such cases the secretion of urine is usually scanty or absent. Dr. Parkes made some years ago a series of experiments which went to show that tea and coffee possessed the power of increasing the elimination of urea in fevers, and Dr. Little has certainly found the kidneys act more freely after a cup of rather strong tea than after medicinal diuretics. Stimulants he considers less beneficial in scarlatina than in most fevers. J. W. LANGMORE, M.D.

MACNAUGHTON JONES ON DIGITALIS IN TYPHUS FEVER.—In the *Dublin Journal of Medical Science* for April, Dr. Macnaughton Jones, of Cork, relates his experience of the treatment of typhus fever by digitalis, following out the observations of Drs. Little and Grimshaw on this matter. Dr. Jones administered it to 110 cases of typhus. Of these eleven died, two of which were marked hopeless on admission. The total number of cases of acute disease treated by digitalis was 310, of which eighteen died. The effects upon the respiration and pulse were to lower them both. The pulse, after repeated doses, falls to 40 or 60. The temperature is usually affected within two days. Its action was particularly marked in the young. The doses used were twenty drops of the tincture or half an ounce of the infusion every three or four hours; twenty drops of chloric ether being given with each dose. In some cases the drug was stopped at night. The drug had no effect over the duration of the fever. The effect upon the nervous system was very marked. There appeared in a large majority of cases to be complete immunity from delirium. Most of the cases went through the fever quietly, and there was a marked contrast with those which he had treated with alcohol. The tongue was moist in nearly every case, and there was a noticeable absence of the hard, brown, and dry tongue so characteristic of this affection. There was no effect upon the petechiæ, except their early disappearance. The secretion of urine was free in nearly all the cases. The convalescence was quicker after its administration. In few of the cases did it produce vomiting. Dr. Jones concludes that in digitalis we have a powerful cardiac stimulant, which, while it gives force to the heart, does not do so at the expense of the system, but rather is a conservative agent, which controls expenditure and limits waste of vital action; always, of course, remembering that a large number of cases will get better without any specific treatment, save that care and guidance which provides for the wants of the system, and secures the patient from the risks of complications. He further says that digitalis appears to be indicated in the early periods of many cases of typhus in which we have a rapid pulse and a high temperature range, regulating our administration by its effects on both, using it rather with the object of guiding the patient up to a certain point than of curing the disease.

J. MILNER FOTHERGILL, M.D.

BOUCHUT ON ESERINE AS A REMEDY FOR CHOREA.—M. Bouchut (*Bulletin Général de Thérapeutique*, April 15, 1875), gives the results of 437 experiments performed with the active principle of the Calabar bean. The eserine was employed either pure or in the form of sulphate. It was some-

times administered by the mouth, in solution or in pill, sometimes hypodermically; the dose in each case varying from two to five milligrammes ($\frac{1}{35}$ to $\frac{1}{14}$ of a grain). The subjects of experiment were children from seven to twelve years of age suffering from chorea in all its stages and varieties.

The physiological effects produced by a single dose of five milligrammes of eserine injected under the skin were the following: pallor, nausea, salivation, intense *malaise*, occasionally vomiting. No colic or diarrhœa occurred. The pupils often remained unaffected; they were sometimes dilated, sometimes contracted, but always active. Abundant perspiration was frequently noticed. The retinal veins were contracted and the fundus of the eye pale. The most serious and disagreeable symptom which occurred was an enfeeblement or even paralysis of the diaphragm. These symptoms lasted from one to three hours after the injection; no unpleasant sequelæ were observed.

The phenomena produced by smaller doses, subcutaneously administered, or by the same dose introduced into the stomach, were similar in kind, but much less intense. The most suitable dose for hypodermic use is two and a-half milligrammes ($\frac{1}{28}$ of a grain); this never causes any very disagreeable effects, and may be repeated twice or three times a day.

Next, as regards the remedial efficacy of the drug, the choreic movements are invariably arrested so long as the physiological effect of the injection lasts; when this has passed off, they return, but usually in a less severe form. Daily injections cure the disease in an average period of ten days.

E. BUCHANAN BAXTER, M.D.

FLINT ON THE REMEDIAL USES OF WATER.—The valuable researches of Dr. James Currie, entitled 'Medical Reports on the Effects of Water, Cold and Warm, as a Remedy in Fever and Febrile Diseases, whether applied to the Surface of the Body or used Internally,' have been latterly too generally overlooked. Dr. Austin Flint (*American Practitioner*, January, 1875) gives a very excellent and appreciative analysis of Dr. Currie's volumes, compares the views of the author with those of the advocates of this therapeutic measure in modern times, and finally presents the results of his own experience. He states that he has had considerable experience in this mode of refrigeration at Bellevue Hospital, and he says it has proved more successful than any other treatment.

The internal use of water, as a remedial measure, irrespectively of the action of cold, is worthy, Dr. Flint thinks, of more attention than it has received. He says: 'A source of more or less benefit, derived often from the so-called mineral springs and artificial waters, seems to me to have been overlooked; namely, the usefulness of simple water ingested in considerable or large quantity. Undoubtedly much of the benefit which is received by those who drink mineral waters at the watering-places is attributable to the change of scene, relaxation, the expectation of improved health, freedom from business and other cares, together with sanitary advantages pertaining to climate, regimen, and diet. But aside from these it is fair to attribute something, and perhaps not a little, to the drinking of the waters. It is evidence of this that mineral waters brought from the springs and those artificially prepared are often beneficial to those who remain at home. That the benefit may

be due, measurably or chiefly, to the water and not to the medicinal constituents is shown by the fact that some waters supposed to possess extraordinary remedial potency have no medicinal constituents. The Missisquoi water, a few years since famous for the cure of cancerous and other affections, was analysed by Squibb, and found to be only remarkably pure water.' In cases of renal disease, Dr. Flint adds his testimony to the efficacy of water used internally as sometimes proving a potential remedy.

PARET ON THE THERAPEUTIC ACTION OF VALERIANATE OF CAFFEINE.—Dr. Paret, in his *Thèse de Paris*, 1874, No. 464, describes this substance as a product crystallised in white flakes, having a very disagreeable odour like decayed cheese. He has administered it in the form of ten centigramme pills, of which he gives from two to three. It may also be given as a syrup containing ten centigrammes of valerianate of caffeine. Dr. Paret comes to the conclusions 1. That valerianate of caffeine has, in some cases, appeared to put an end to the nervous vomitings co-existent with hysteria; 2. That this medicine had given to invalids increase of a decided appetite, and a physical as well as moral strength which they had not previously possessed; 3. That the vomitings of consumptive patients had not been checked by it. It has also been tried in the sickness of pregnancy, but without favourable results. It appears that Dr. Labadie-Lagrave has twice used the syrup of valerianate of caffeine for infantile whooping cough, and that this medicine, taken in doses of two fluid drachms per diem, produced a very marked improvement. The fits of coughing, which at first amounted to fifteen daily, fell to four, after a week's treatment.

RECENT PAPERS.

- On the Use of Alcohol in the Treatment of Disease. By Dr. Morris. (*Philadelphia Medical Times*, April 10.)
 A Case of Direct Transfusion. By Dr. Haynes. (*Philadelphia Medical Times*, April 3.)
 New Experiments on the Physiological, Toxic, and Therapeutic Action of Chlorate of Potash. (*Gazette Méd. de Paris*, April 24.)
 On the Antagonism between Jaborandi and Sulphate of Atropine. By M. Vulpian. (*Gazette des Hôpitaux*, April 22.)
 On the Different Natural Methods of Administering Phosphorus. By Dr. Méhu. (*Bulletin Général de Thérapeutique*, April 30.)
 On a Case of Poisoning by Infusion of Poppyhead cured by Injections of Coffee. By Dr. Kobryner. (*Bulletin Général de Thérapeutique*, April 30.)
 Notes on 'Changed Aloin' and the Resin of Aloes. By Dr. Craig. (*Edinburgh Medical Journal*, May, 1875.)

OPHTHALMOLOGY AND OTOLOGY.

STEINHEIM ON DISEASE OF THE CHOROID CONSEQUENT ON THE USE OF CHLORAL HYDRATE.—Under this title, Dr. Steinheim has recorded (*Berliner Klinische Wochenschrift*, February 8, 1875) a remarkable instance in which inflammation of the choroid followed the administration of chloral hydrate on three several occasions in the same individual.

A married woman, aged thirty-nine, who in early life had enjoyed very good health, and who had

given birth to five children, without any apparent reason had become the subject of most distressing asthma, so that, when she first presented herself to Dr. Steinheim, she was extremely emaciated and thoroughly worn out. The paroxysms of dyspnoea were very frequent, although she enjoyed short intervals of rest. A fortnight previously, when her sleep had been constantly broken for several nights, she took for the first time a dose of chloral, the immediate result of which was that her eyesight became dimmer, so that she saw everything as through a cloud, and could with difficulty see her way about; in the course of a few days her eyesight was gradually restored, but her conviction was very strong as to the effect of the medicine she had taken. On a second occasion, when chloral had been given to her much against her will, her eyesight again suddenly left her, so that she could with great difficulty distinguish light from darkness; at the same time her eyes appeared red and streaming with tears; but on this occasion the symptoms did not disappear as they had previously done, and consequently she sought further advice. When examined by Dr. Steinheim, she was extremely emaciated and in distress, her respirations 40 and pulse 140 in the minute; rhonchus and sibilus were present on both sides of the chest, but the heart was normal. The conjunctivæ on both sides were injected, but without chemosis; in the right eye there were punctiform opacities in the posterior layer of the cornea, the aqueous humour was turbid, and the pupil was full of lymph and was adherent to the capsule of the lens. In the left eye the aqueous humour was turbid; there were one or two synechiæ in the pupil, but not nearly to the same extent as in the right eye. Ophthalmoscopic examination was impossible, and the extent of the visual field was uncertain, although it was clear that there was good perception of light in each eye. As the employment of atropine produced no effect upon the pupils, an iridectomy was performed upwards in each eye, and with good results, inasmuch as the corneal wounds healed readily and well in spite of the patient's unfavourable condition; the media became much clearer, and the perception of light much increased; it was now possible to detect with the ophthalmoscope floating opacities within the vitreous body, although no details of the fundus could be made out. Subcutaneous injections of morphia had given her such relief, that at her own desire the patient was allowed to return home. For some time her condition and her health improved in every way, but after a recurrence of a most severe paroxysm, while under the care of another physician, she again took a dose of chloral which, as before, produced a quiet night, but on the following morning the same loss of vision occurred as on the previous occasions; but in this instance, unfortunately, the loss of vision appears to have been permanent and nearly complete. The nature of the symptoms in this remarkable case can hardly be doubted; the asthma was essentially the result of some severe disturbance of the nervous system, and the occurrence of disease within the eye in the shape of iridochoroiditis, on three several occasions immediately after taking a dose of chloral, cannot be looked upon as a mere coincidence. Steinheim is of the opinion that the order and the appearance of these symptoms were due to venous thrombosis in the choroid, owing to the enfeebled condition of the heart and the arterial circulation. On its first occurrence, it was but partial, and the collateral circulation was

sufficiently active to prevent any decided structural alteration, and consequently the loss of vision was limited and of short duration. On each subsequent occasion, however, the disturbance to the circulation was greater, and the structural change was more marked. In considering the features presented by this case, Steinheim attaches great value to recent observations made by Russian authors, Blesig and others, on the frequent occurrence of choroidal affections in connection with recurrent fevers, in which it is suggested that venous thrombosis is the starting-point within the eye, induced by the enervated condition of the heart.

It is very well known, at the present time, to how great an extent the action of chloral is able to influence the heart's action and the respiration, its influence no doubt being due to its action upon the sympathetic nerve. The observations of Crichton Browne and of other writers upon the causation of many cases of urticaria and of erythema are illustrative of the derangements which result in the circulation, in consequence of defective or disturbed innervation of the blood-vessels; and Dr. Steinheim is of opinion that in this instance the disturbance of the choroidal circulation and the subsequent choroiditis were the direct result of the action of the chloral upon the nerves which preside over the intraocular circulation.

MANZ ON THE APPEARANCE OF THE OPTIC NERVE DURING ACUTE DISEASE OF THE BRAIN.—In the *Klinische Monatsblätter* for December, 1874, will be found an interesting paper which was read at the last meeting of the Ophthalmological Congress, in which Professor Manz sums up at some length the result of his observations with the ophthalmoscope during the various forms of disease of the brain and its membranes. The phenomena which he had observed were hyperæmia of the optic disc, engorgement and tortuosity of the retinal veins, and optic neuritis. As the author had nothing new or of special interest to relate with reference to the last of these conditions, his remarks are confined to the former two only.

With regard to hyperæmia of the disc, meaning by that term the condition in which it appears unnaturally pink, in consequence of overfulness of its arterial capillaries, he has come to the conclusion that it is an uncertain and a most unreliable symptom; and his reasons for doing so are probably sufficient. It can be shown that the colour or tint of the disc may be materially modified by the state of the circulation within the carotid vessels, quite independently of any general hyperæmia of the cerebral contents; and the peculiarity of the arrangement of the blood-vessels around the entrance of the optic nerve, by which a communication is established between the retinal vessels and those of the choroid, explains the occurrence of hyperæmia of the disc in cases where there is only a disturbance of the choroidal circulation, and where there is no reason whatever to suspect any intracranial mischief. It is highly probable, then, that the colour of the disc may change frequently in the same eye at different times; and as the variation may arise in several ways, it is obvious that hyperæmia of the disc can be no very certain index of a similar condition within the brain or its envelopes.

The engorgement of the retinal veins, however, in Professor Manz's opinion, is much more indicative of serious mischief. In the majority of instances the

venous congestion was seen to be associated with a hazy and apparently oedematous condition of the retina to some extent; these conditions, when combined, may be regarded as pathognomonic of some interference with the cerebral circulation; but in many instances it is uncertain whether the veins are engorged or not, as they no doubt vary in size in the same individual. It might be supposed that the appearance of the retinal vessels would be materially influenced by the condition of the circulation generally, but Manz has not found this to be the case in the eyes of those who have come under his observation; he has not, for instance, found it so in the eyes of those who have been extremely anæmic or chlorotic, nor in the eyes of epileptics. He believes that the venous congestion and the opacity of the retina may be explained on the assumption that there has been some impediment to the circulation through the lymphatics, and that the lymph-canals, which are formed by the sheaths of the optic nerve, and which, according to the researches of Schwalbe, communicate on the one hand with the lymphatic spaces within the eye-ball, and on the other hand with the subarachnoid spaces, become distended with fluid, and increased in size so as to press upon the surrounding veins, and to prevent the free escape of the venous blood from the retina and from the optic nerve. It was admitted on all hands that the explanation was plausible, and so far true in that this distension of the sheath of the nerve could occur; but it was urged at the same time that it was almost impossible to say when this distension had or had not occurred, and the *post mortem* examinations which had as yet been made with reference to this point, had not determined what was the normal size or capacity of the lymph-spaces in question. [Whether Professor Manz's explanation be the true one or not, his paper is very valuable, inasmuch as it offers a plausible explanation of an appearance and a condition of the optic disc which are very common, and which are, in many instances, considered as evidence of optic neuritis, although symptoms of active inflammation are otherwise wanting.—*Rep.*]

KLEIN ON SYMPATHETIC OPHTHALMIA AFTER CATARACT OPERATIONS.—A short paper, by Dr. Klein, of Vienna, appears in the February number of the *Monatsblätter*, as part of the proceedings of the Ophthalmological Congress (1874) in which he narrates the particulars of two cases of sympathetic ophthalmia which had occurred in his own practice subsequent to an operation for cataract; until this time he knew of but a few such instances on record, which had been described by Arlt, Critchett, and Schweigger. An important result of the discussion which ensued amongst the members of the Congress was to elicit the fact that no less than sixteen such cases had been observed. In the first of Klein's cases, the operation for extraction had been attended by considerable prolapse of the iris, which gave a good deal of pain and was consequently excised. Some weeks afterwards, the vision of the other eye became impaired and an attack of iridocyclitis soon developed itself, in order to combat which the removal of the offending eye was proposed, but the patient declined to submit to any further operation. The second case was that of a middle-aged woman who had a complete cataract in one eye, which was operated upon, and an incomplete cataract in the other. The operation appeared in every way satisfactory; but, as in the

other case, it was followed by a prolapse, and in the course of a short time by iritis in the other eye. Enucleation was recommended, but was declined; iridectomy was performed in both eyes, but without any good result; the pupils became obstructed by adhesions; the eyes became soft, and vision was reduced to mere quantitative perception of light.

In Klein's opinion, the prolapse and strangulation of the iris originated the sympathetic mischief in the sound eyes of his two patients, but the opinion of other and distinguished members of the Congress was not altogether in favour of such a view. It was urged that if it were so, we should expect to see sympathetic inflammation a frequent result of leucoma adhærens, which it is not; and especially should we expect it after the performance of iridodesis, an operation in which a portion of iris is intentionally strangled in the margin of the cornea—very near to the ciliary region. It was demonstrated also that it had occurred after operations which had been attended by no prolapse whatever, and in these instances it was thought probable that the section had been carried too far within the ciliary region. But there were still other cases in which it was evident that no fault could be found with the extent or with the position of the section, and in these it would appear that the dragging upon the ciliary region, which was caused and maintained by contraction of the opaque capsule, had been sufficient to originate an inflammation resulting in the destruction of the other eye. The President might well say that such an array of facts tended strongly to support the opinion of those, who declined to operate for cataract while the other eye was yet unimpaired.

GAYAT ON OPHTHALMOSCOPIC EVIDENCE OF DEATH.—The number of the *Annales d'Oculistique* for January, 1875, contains an extract from a small work of Dr. Gayat, in which he describes the appearance of the eyes of criminals after decapitation. In the outset, it is shown that no great reliance can be placed upon the condition of the pupil as a sign of death; for not only does this alter under many different circumstances during life, but the researches of Grünhagen have proved that the state of the pupil after death depends in some measure upon, and can be regulated by, the degree of temperature. It is well known that the pupil varies with the amount of refraction which the eye possesses, so that a dilated pupil is usually one of the phenomena which accompany myopia; and it has been ascertained by Landolt and Nuel, that after sudden death from loss of blood, the eyes of rabbits, which during life are hypermetropic, have become emmetropic, or even myopic. The changes in the fundus oculi, which Dr. Gayat observed in all his cases of decapitation, were complete emptying of the arteries and of the veins, not only upon the optic disc, but for a limited distance around it; beyond this point, however, the vessels were still filled with blood. At the Ophthalmological Congress at Heidelberg, Wecker alluded to the emptiness of the arteries of the retina as being ophthalmoscopic evidence of death; and upon this it was stated by A. Weber that, having made a series of observations upon the eyes of animals which had previously undergone sudden death after ligation of the aorta, he had invariably found that the vessels immediately around the optic disc had been completely emptied, while those at the peripheral part of the fundus still contained blood. In

one or two instances, Dr. Gayat found that the column of blood still remaining in the vessels appeared to have been interrupted in places, as he suggests, by irregular contraction of the blood-vessels; and he thinks it very probable that the same condition would be met with in the arteries of other tissues if it were possible to see them. He considers the complete emptiness of the vessels upon and around the disc to be caused by the pressure which is suddenly and evenly applied to the disc, by the tonicity of the muscles of the eye acting upon the contents of the globe for some short time after death.

JACUSIEL ON A CASE OF ENCEPHALITIS AND INTERSTITIAL MYELITIS WITH ULCERATION OF BOTH CORNEÆ.—In the *Berliner Klinische Wochenschrift* for March 8, 1875, will be found a short clinical account of a case of this kind, similar to that described by Von Gräfe in his *Archiv* (Band xii.) William G., aged six months, came under Dr. Jacusiel's care on account of vomiting with diarrhœa; these symptoms were very severe, but appear to have yielded to active treatment. The child was enabled to take food; and the pulse and general temperature became natural. But he appeared singularly apathetic, and his eyes were wanting in expression, otherwise he might have been considered as nearly well. The conjunctivæ soon appeared dry (xerosis) from absence of secretion, and from this moment the suspicion of cerebral mischief was aroused; a few hours later both corneæ were found to be infiltrated, ulcerated at their lower margins; the conjunctivæ were injected, and their sensitiveness had diminished. A very short time elapsed before both corneæ were entirely destroyed; and on the fifth day from the commencement of the child's illness trismus set in, and at the same time the pulse became more frequent, and the cheeks appeared flushed. The eyelids, the conjunctivæ, and the mucous membranes of the nose and of the lips were now completely insensible; the child did not cry, and did not appear to suffer much, but remained in the same remarkable apathetic condition until its death, just five days after the first attack. On one occasion, it was reported, there had been some slight convulsive movements of the upper extremities. No *post mortem* examination was permitted. During his illness the child was seen by Professor Schweigger, who confirmed the opinion expressed by Dr. Jacusiel. The cause of the attack could not in any way be explained. The parents were in good health, and had never had syphilis; their other children were healthy; and this child up to this attack had appeared strong and thriving, and had not been exposed in any way to exanthemata. In addition to that described by Von Gräfe mentioned above, other cases of the same nature have been recorded in Virchow's *Archiv* (Band xxxviii.); and in earlier numbers of this same journal (*Berliner Klinische Wochenschrift*, nos. 31, 32) similar cases have been recorded by Hirschberg.

BOWATER J. VERNON.

RECENT PAPERS.

- On the Treatment of Ophthalmia of New-Born Children by Nitrate of Silver. By Dr. Hasket Derby. (*Boston Medical and Surgical Journal*, April 1, 1875.)
On Syphilitic Affections of the Lacrymal Apparatus. By Dr. R. W. Taylor. (*American Journal of Medical Sciences*, April, 1875.)

On Chronic Catarrhal Otitis : its Diagnosis and Treatment. By M. Philippeaux. (*Lyon Médical*, April 11.)
 Affection of the Corpus Vitreum consecutive on Generalised Arteritis : Thrombosis of the Basillary Artery. By Dr. Poncet. (*Annales d'Oculistique*, March and April, 1875.)
 Fragments of Ophthalmology. By Dr. Masselon. (*Ibid.*)
 On Iodoform as a Remedy in the Treatment of Affections of the Cornea and Conjunctiva. By Dr. Charles Bull. (*New York Medical Record*, April 24.)
 Note on Acute Syphilitic Otitis. By Dr. Ladreit de Lacharrière. (*Annales des Maladies de l'Oreille et du Larynx*, May 1.)

REVIEWS.

A Series of American Clinical Lectures. No. I. On Disease of the Hip-joint. By LEWIS SAYRE, M.D. New York, G. P. Putnam's Sons. January 1, 1875.

This series will be read with much pleasure and profit in this country if the succeeding numbers of it should be equal in interest to the present lecture. Dr. Lewis Sayre is well known in Europe as an eminent surgeon, particularly in connexion with the subject of hip-disease; and although the present brochure hardly contains anything which will be novel to those who have read his previous writings on the subject, it condenses his doctrines, and puts them graphically and in a brief space before the reader.

The first point on which Dr. Sayre dwells, is the traumatic as contradistinguished from the constitutional origin of hip-disease. On this point he speaks as follows : 'Hip-disease generally results from an injury, blow, fall, wrench, strain, over-exertion, jump, violent exercise, and sudden checking of the perspiration, or some other violence done to the part, and may occur to any child in the world. In fact, from careful observation of some hundreds of cases, I have found it more frequently in the active, robust, healthy child than in the dull and sickly one, for the reason that these children are more reckless, wild, and romping, and therefore run more risk of injury than the feeble, sickly child. I know, gentlemen, that this is not the doctrine that you find in any of your text-books, and is, at the present time not generally believed by the mass of the profession. I was taught, and all your standard works and text-books teach you, that it is a disease essentially of a strumous origin, dependent entirely upon a tuberculous or scrofulous constitution. One of the most distinguished writers on surgery states distinctly, "No struma, no hip-disease."'

The traumatic origin, or, at least, the frequent traumatic origin, of hip-disease is, we believe, now an admitted fact; and Dr. Sayre can hardly be familiar with the modern text-books, at least those which circulate in this country if he believes that it is not asserted in them. Certainly if he had read Mr. Bryant's *Practice of Surgery*, pp. 820-827, or had honoured the writings of the present reviewer with his attention (*Surgical Diseases of Childhood*, p. 434, second edition), he would have seen that some, at any rate, of the writers of text-books are quite as alive as he is to the fact, which the present writer, for one, believes to be indubitable, that hip-disease is not always strumous. But Dr. Sayre appears to us to have gone just as far on the other side; or perhaps only to have, as lecturers are apt to do, used terms more absolute than exactly express the truth. It would certainly be understood, from his way of putting it, as if struma were a positive protection against hip-disease, and as if the latter could not arise spontaneously. Daily experience

seems to show on the contrary that strumous children, and the children of consumptive parents, are far more prone to hip-disease than the robust and healthy; and that in them it may be generated spontaneously, or, at least, if its origin be traumatic, the injury is so slight as to escape the most careful investigation. We pass over the method of examination which Dr. Sayre employs for the purposes of detecting the disease in its earliest stage. It is very minutely described, as if the precise manipulations used were of extreme importance; but, in fact, it only comes to this, that the surest test of the early stage of the disease is that the joint is stiffened, so that in extensive movements without anæsthesia the pelvis moves with the thigh. We are glad to note the following sentence, which we can confirm from personal observation. 'If the disease be detected in this early stage and properly treated, I am satisfied, from extensive experience, that the great majority of cases will entirely recover, with perfect motion and without deformity.' (page 5.)

Dr. Sayre, like other authors, divides the disease into three periods, which he denominates—(1) the stage of irritation; (2) the stage of effusion; and (3) the stage of rupture of the capsule and perforation of the acetabulum; and he follows Mr. Barwell and other surgeons, in making the position assumed by the limb depend on the assumed fulness of the capsule in the second stage, and its evacuation in the third. We should have been glad of some better anatomical evidence than has as yet been adduced to prove the truth of this mechanical doctrine. We have certainly over and over again seen cases presenting all the external signs of Dr. Sayre's second stage with no evidence at all of effusion within the joint, at least to such an extent as could produce any change in the position of the bone; and as to the mechanism of the third stage, it appears to us very dubious whether perforation of the capsule ever occurs, except as the result of the bursting of an abscess. Dr. Sayre speaks of the escape of 'pus or other fluid' from the capsule; but surely there is no proof that the capsule is ever ruptured by mere synovitis, nor does Dr. Sayre appear to us to take sufficient account of the changes going on in the head and neck of the bone. In fact, he speaks of them as if they were consequences of the muscular spasms. 'Constant muscular contraction,' he says, 'promotes interstitial absorption of the head and neck and the acetabulum'—a statement which is, to say the least, dubious. Inflammation of the femur and acetabulum appears quite as capable of generating muscular spasms.

With regard to the treatment of the disease, two points only seem to us to require notice. One is the treatment by the splint which has received Dr. Sayre's name, and the object of which is to produce extension of the thigh, and so relieve interarticular pressure and the pain and spasms accompanying the disease, without confinement to bed. The present writer, after having tried this splint repeatedly, must confess to having failed in this object, that is to say whenever the disease has been in so acute a stage that the child was unable to bear the ordinary starched or leather splint. If this was our fault we should be glad to give a renewed trial to the apparatus. After Dr. Sayre's visit to England some two years since, we believe the apparatus was tried tolerably freely on his recommendation, and we should be glad to learn whether it has been generally found to answer.

But the most important part of Dr. Sayer's lecture is that in which he speaks of excision of the hip. In commencing this topic, Dr. Sayre makes the wonderful assertion that 'this operation is very simple, indeed, *and attended with no danger whatever*,' p. 20 (the italics are ours). We cannot too strongly protest against such a description of an operation in which, to use Dr. Sayre's own words, 'the patient being laid upon the well side (a curious expression which is always used in this paper to express what we call the sound side) an incision is made from a point midway between the crest of the ilium and the top of the trochanter major, the knife carried firmly down to the ilium, and drawn with a single sweep downward and outward over the posterior edge of the trochanter major, and then curved forward and inward, making a crescent-shaped incision of some four to six inches in length,' and then the periosteum is peeled off the femur, the whole of the trochanter major and head and neck of the bone is removed, and very probably the acetabulum freely scraped, gouged, and rasped. Such an operation, undertaken on a sickly child, weakened with long confinement and worn out by pain and suppuration, is really one of extreme danger, and it can serve no useful purpose to blink the fact. In Dr. Sayre's opinion, the trochanter should always be removed, even when not diseased, an opinion we cannot share. In fact, his method of operating seems to us to involve more extensive incisions and more disturbance of the parts than is commonly necessary; nor can we see the motive for removing a healthy portion of the femur on the speculation that it may be regenerated by the periosteum. That the trochanter does not oppose any obstacle to the exit of the discharge, we have satisfied ourselves by frequent experience. But whether Dr. Sayre's subperiosteal or the ordinary method of excising the hip-joint is the better, we cannot believe that either can be free from danger and very grave danger, and we deprecate the hasty use of language so calculated to mislead. Dr. Sayre's plan is to fill the wound with Peruvian balsam, insert a plug of oakum, stitch up the greater part of the wound, leaving the plug projecting, then place the limb in a screw apparatus, provided with a footpiece. The limb being firmly secured in the apparatus so that the knee cannot bend, the footpiece is brought down till the limbs are of the same length—and now, according to Dr. Sayre, immediately the patient has recovered from the anæsthetic, 'he is capable of being stood up (*sic*) against the wall, or riding out in a carriage or boat, and can take his daily exercise in this way' (p. 23). Dr. Sayre also claims for this method the advantage of procuring the complete restoration of the movements and of the length of the limb. 'In one case,' he says, 'the motion is greater in that joint than upon the opposite side, and the limb less than a quarter of an inch shorter than the other, although it was sawed three inches below the top of the trochanter major; the head and neck having been entirely absorbed, and the acetabulum perforated' (p. 23).

With these remarks, we must commend this tract to the attention of our surgical readers, merely adding that, though we cannot accept all Dr. Sayre's theories, and though he claims an amount of success for the operative treatment greater than any that we can hope to obtain, his lecture is of very great interest, and his plan of operation well worthy a careful and sufficient trial.

T. HOLMES.

MISCELLANY.

DR. BELL PETTIGREW, F.R.S., Lecturer on Physiology at Surgeon's Hall, Edinburgh, has been awarded the Godard Prize of the French Academy of Sciences for his original anatomical and physiological memoirs. Dr. Pettigrew, in virtue of the above distinction, becomes a laureate of the Institute of France.

DRUNKENNESS AND ITS PREVENTION.—Dr. Lunier lately read a paper at the Paris Academy of Sciences, in which he sought to show that drunkenness becomes more general in proportion as the alcohol of commerce is introduced into common use. Thus, in wine-producing countries, where wine is the ordinary drink, drunkenness is rare; whilst, on the contrary, it is general in countries which do not produce wine. His remedy for this state of things is to give every possible facility for the consumption of wine in those countries where it is an imported luxury.

FECUNDITY OF THE SHARK.—The *Union Médicale* of February 20, contained an account of a female of this species, caught by M. Lesseps, which on dissection was found to contain twelve living young ones. This viviparous character of the shark is confirmed by Dr. Moinet, an ex-naval surgeon, in a letter published in the *Union Médicale* of April 29. In it he relates that, when off the Antilles, an enormous blue shark was taken, which when opened was found to contain seventy very lively young ones, which, when thrown into a tub of sea-water, swam about with great vivacity. In order to avoid any chance of being devoured at a later period by these interesting orphans, Dr. Moinet thought it advisable to cut short their career in a bath of boiling water. The small sharks varied from about nine to ten inches.

THE MEDICAL NIGHT SERVICE OF ST. PETERSBURGH.—The *Voix* gives some details of the practical working of this new institution, already referred to in these columns, and which has now been in operation for a twelvemonth. At first, this new night service, founded by the private exertions of a few medical men, had many difficulties with which to contend, but perseverance triumphed in the end, as it usually does. This novel institution is now found to be extremely useful to the inhabitants of St. Petersburg, and reckons persons of all ranks and means amongst its clients. The medical men on duty are always ready to render the services asked at their hands, without any previous knowledge that their labour will prove remunerative; neither do they shrink from going, when required, to the most dangerous and notorious localities. The number of visits made and carefully registered during the current year amounts to 1,024, of which the greatest number was in January, when they amounted to 152; the maximum of visits made in one night being six and the minimum three. The patients comprised 524 men, 363 women, and 137 children of both sexes. These nocturnal duties were performed by fifteen of the permanent staff and thirty-five occasional helpers. The fees paid by persons in good circumstances have been utilised in completing the necessary arrangements for this night medical service and in organising small surgeries, where the necessary appliances may be always found at hand. The example thus set by the medical profession at St. Petersburg has been followed by the sincerest of flattery, 'imitation,' at Moscow, Odessa, Warsaw and other large cities of the north.

PROFESSOR HUXLEY ON THE CROCODILE.—Professor Huxley, who has undertaken the duties of Professor Wyville Thomson's chair of Natural History in the University of Edinburgh during the present summer session, gave his introductory lecture, on the 3rd instant, to a large audience. He put before his class the considerations which resulted from the careful study of a single animal, the crocodile; an animal which was worthy of attentive study, as it might be said that a knowledge of its organisation

was the key to the understanding of a vast number of extinct reptiles, and the key to the organisation of birds; while it helped them to connect the higher with the lower forms of vertebrate life, and was, in part at any rate, the key to the history of past life upon the globe. There might be asked respecting this animal, as respecting every other living thing—first, what was its structure? second, what did it do? third, where was it found? and fourth, in virtue of what chain of causation had this thing come into being?—this last having only been recently recognised as one of those questions which might legitimately be put. He then proceeded to describe the organisation of the crocodile—its morphology, physiology, and distribution; and remarked that there were few animals about the palæontological history of which they knew so much, as they could carry back its history through the tertiary and secondary epochs. The answer to the last question constituted etiology, or the science of the causes of the phenomena of morphology, physiology, and distribution. Here, as in all cases where they had to deal with causation, they left the region of objective fact and entered that of speculation. With their present imperfect knowledge, the only safe thing they could do, in attempting to form even a conception of the cause of this extraordinary complex phenomenon, was what a wise historian would do—stick by archaeological facts. He pointed out that palæontological facts showed that there had been a succession of forms of that animal to the present day, the oldest being something like the lizard.

INAUGURATION OF THE ZOOLOGICAL STATION OF NAPLES.—After the first working year a formal inauguration of this new institution took place on April 11. Dr. Dohrn had invited the Italian Minister of Public Instruction, Signor Borghi, and the German Ambassador at Rome, Herr von Kendell, to be present as representatives of the two countries which had most assisted in completing the new establishment, the one granting the locality, whilst the other paid a subvention of 3,000*l.* towards the expenses of the construction. Unfortunately both gentlemen were at the last moment prevented from being present, but sent two letters stating their great sympathy and the sympathy of the two Governments which they represent, for the Zoological Station. The inauguration solemnity consisted chiefly in an inaugural address by Dr. Dohrn himself to an audience of distinguished gentlemen, and a short answer given by Signor Paureri, Professor of Anatomy of the Naples University. During the first year of the existence of the Zoological Station, the following naturalists have made use of its laboratories:—From England: Mr. Balfour, Mr. Dew Smith, Mr. Marshall, from Cambridge; Mr. E. Ray Lankester, from Oxford. From Holland: Mr. Hu-brecht (Leyden), Dr. Hoek (Haag), Professor Hoffmann (Leyden), Dr. Hoorst (Utrecht), Professor Van Ankm (Groningen). From Germany: Professor Waldeyer (Strassburg), Professor Wilh. Müller (Jena), Dr. Korsmann (Heidelberg), Professor Hesslöh (Constanz), Professor Greeff (Marburg), Professors Kollmann and Ranke (Munich), Dr. Steiner (Halle), Professor Oscar Schmidt (Strassburg), Professor Langer Lans (Freiburg), Dr. v. Thering (Göttingen), Dr. Gotte and Dr. Lorent (Strassburg), Dr. Vetter (Dresden), Professor Selenka (Erlangen). From Austria: Professor Claus (Vienna) with two students of the Vienna University. From Russia: Professor Salensky (Kazan), Dr. Rajewsky (Moscow), Dr. Bobretzky (Kiew), Dr. Ulianin (Moskau), Dr. Rosenberg (Dorpat), Cand. Isnoskoff (Kazan). From Italy: Dr. Cavanna (Florence), Dr. Fanzago (Padua), Dr. Zingone (Naples). If the number of naturalists coming to Naples in former years to study Marine Zoology be compared with the number of those who are named above, it is at once obvious how great an effect the Zoological Station has had on the increase. Formerly from three to five zoologists used to come during the year to Naples, often even less or none. From Easter 1874 till Easter 1875, there were thirty-six naturalists, and during March and April of this year alone there have been working contem-

poraneously in the Zoological Station eighteen zoologists. At present the following governments and universities have entered upon contracts with the Zoological Station for one or two tables:—Prussia, Italy, Russia, and Austria, each for two tables; Bavaria, Saxony, Baden, Mecklin-burg, Holland, and the Universities of Cambridge and Strassburg, each for one table. Negotiations have been entered into with Württemberg and Hesse-Darmstadt. Accommodation for twenty-four naturalists will be ready for next winter, and it is hoped to augment the daily arriving quantity of marine animals for investigation by help of a small steam launch, which will be always out on fishing expeditions, weather permitting. In Dr. Dohrn's inaugural address, reported in *Nature*, of May 6, he remarked that the decreasing importance which the study of zoology holds in the medical curriculum can hardly be avoided without inordinately lengthening the time required for such a course, since medical science itself has become so subdivided and specialised. Still, those who look upon the medical profession as something more than merely a means of livelihood, will not treat zoology with indifference, but will perceive the important bearing it has on the proper understanding of many medical problems. He then insisted on the importance of the principles of the development theory on the progress of medicine, affirming that in the case of transmission of a hereditary tendency to certain forms of disease, the application of these principles might be made to serve a most important purpose, if thoroughly understood and carefully carried into practice. Dr. Dohrn bespoke the utmost toleration for the Darwinian theory from all classes. He hoped that the fact that he had connected the name of the station with the development and application of the Darwinian theory would not prevent any one from lending it his support. The important bearing which the work at the Naples and similar stations had on the elucidation of this law was then pointed out in these terms. 'Every fish, every crab, every Medusa, is the result of a long process of development, which we have to trace, and the determination of which the zoological station is intended to facilitate. That is its purpose; it was for that end that I built it, and for that reason I have asked you to lend your support to my efforts.'

DAYLIGHT *versus* GAS.—There can be no excuse for burning gas during day-time wherever there is either a window, skylight, or area-grating through which daylight can be admitted; by adopting a Daylight Reflector, a considerable saving will be effected, and the healthiness of the premises wonderfully improved. The public are strongly recommended to visit the manufactory of the Reflector Patentee, Mr. Chappuis, of 69 Fleet Street, who will give every requisite information.—[Adv't.]

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The London Medical Record.

WEDNESDAY, MAY 19, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

VULPIAN'S EXPERIMENTAL PATHOLOGICAL STUDIES ON THE PHYSIOLOGICAL ACTION OF TOXIC AND MEDICINAL SUBSTANCES.

(Continued from page 286.)

Toxic and medicinal substances may be introduced into the animal economy by various methods. Gases and vapours are introduced by the surface of the respiratory organs; and this method is likewise put into practice for liquid substances, because the pulmonary mucous membrane is a better absorbent than the mucous membrane of the digestive system.

The experiments of Golner, who was able to inject about thirty-nine pints of water into the lungs of a horse without killing it, as well as those of M. Colin, who made some injections of the same kind, and saw twenty-two pints and a half of water, which were injected into the lungs of a horse, in the space of three hours completely absorbed, are well known.

M. Claude Bernard, in his lectures on anæsthesia and asphyxia, also cites the experiments of M. Ségalas, in which three centigrammes of extract of *nux vomica*, dissolved in sixty grammes of water and injected into the trachea, killed the dogs injected in two minutes; while the introduction of ten centigrammes of the same extract into the stomach did not produce any effect. The cases published by M. Jousset de Bellesme, and related in M. Claude Bernard's lectures, show that in urgent cases, when, for instance, we have to deal with pernicious intermittent fever (under which conditions M. Jousset's experiments were made), the injection of sulphate of quinine into the trachea may offer great advantages. It might, perhaps, be wise to try this way of introducing drugs in other instances in which absorption takes place with disheartening slowness, as in cases of cholera. For some experiments, absorption by the mucous membrane of the digestive organs is useful, although it presents numerous inconveniences. Thus poisons ingested into the stomach may bring on vomitings or diarrhoeal evacuations, which eject the ingested substances. It may also happen that the toxic substance may be modified by the action of the gastric juice. On the other hand, absorption is more or less rapid according as the stomach is full of food or empty. This refers, of course, to the absorption of the toxic or medicinal agent. The effects of certain substances may be rendered more rapid or more certain by the presence in the stomach of matters in process of digestion. This will occur with the cyanides, which, under these conditions, will produce a disengagement of hydrocyanic acid. But the emptiness of the stomach will favour the penetration into it of those substances which are naturally absorbed. In a general way, it may likewise be

said that the gastric mucous membrane of the mammalia absorbs the majority of poisons somewhat slowly, even when the stomach is empty. It is thus that curara, introduced into the digestive passages of a mammiferous animal, only produces toxic effects when it is ingested in very large quantities. This is in consequence of the slowness of absorption. The curara thus gradually absorbed is eliminated in the same proportion, so that at no time does there remain a sufficiently large quantity in the organism to exercise its characteristic action. This is thoroughly proved by the fact that, when an animal's kidneys are removed before introducing curara into its stomach, we find, like M. Claude Bernard, the effects of curarisation produced, because the poison is able to accumulate in the organism, its principal eliminative outlet being suppressed. Strychnine is in the same way very slowly absorbed by the mucous membrane of the stomach. M. Bouley had noted that horses, whose pneumogastric nerves had previously been divided, and into the stomach of which a salt of strychnine was introduced, were not poisoned. It was thence concluded that the mucous membrane of these animals does not absorb strychnine. This conclusion is erroneous; for, if the strychnine be sought for in the contents of the stomach some hours after the experiment, it is found to have disappeared. How is it, then, that horses in which the vagus nerves are intact are quickly poisoned by the same dose of strychnine which remains harmless when these nerves are divided? This result comes from the paralysis of the muscular fibres of the stomach, produced by the division of the nerves. The strychnine then remains confined in the stomach, which in the normal condition only possesses a very small power of absorbing this substance. Absorption goes on very slowly, and the poison is eliminated in the same proportion as it is absorbed; so that the strychnine is never, at any moment, found in sufficient quantity in the organism to produce its usual effects. When, on the contrary, the vagus nerves are intact, the movements of the stomach cause the strychnine to pass into the intestine, where absorption is very active, and poisoning quickly occurs.

The veins are frequently chosen for the introduction of poisons into the organism. This method offers great advantages with regard to the rapidity of absorption; but is not without inconveniences. There is danger of coagulating the blood, of injecting air or solid particles in suspension in the fluid used as a vehicle, and a still greater danger of producing syncope and sudden death by the direct action of the injected liquid on the heart. The endocardium being endowed with sensibility, if that membrane be suddenly brought into contact with an irritant liquid, a disturbance, and even a stoppage, of the pulsation of the heart takes place. M. Vulpian states that he has often verified this fact in cases of injection of chloral into the femoral vein. He here protests strongly against the custom adopted by some experimentalists of making injections by the jugular vein. The danger he has pointed out in the case of the femoral vein is much greater when the jugular vein is in question, since it is so near to the heart, that the poison reaches it before it has had time to mix with the mass of the blood and thus to lose its irritant properties. He insists in the strongest terms on the necessity of never choosing the jugular vein for the purpose of injecting toxic or medicinal substances. The error will thus be avoided that has been committed by many experimentalists, who

have pointed out, as a physiological effect, the cardiac disturbance caused by a direct action of the injected liquids on the internal wall of the heart.

The most generally employed method of introduction is the injection or subcutaneous insertion of poisons or drugs. This method is in general preferable to the preceding methods. It is specially excellent when it is desired to inject a small quantity of the dissolved substance under the skin. It has, however, been the source of numerous errors, the results of a defective operative method. Toxic substances introduced under the skin may act locally and directly, and bring on local inflammatory accidents, which in certain cases help to complicate the effects of the substances of which it is wished to study the physiological action, by giving rise to secondary general disturbance. On the other hand, if a liquid capable of acting chemically on the tissues (concentrated alcohol, acids, etc.) be employed as a vehicle, this liquid may bring on a corrugation of the region into which it is introduced; the circulation of the vessels becomes impeded, and the absorption of the active substance, of which it is desired to study the effects, thus becomes impossible. M. Vulpian likewise calls special attention to the point, that substances dissolved in liquids easily absorbable spread themselves by diffusion from one point to another to a very considerable distance from the place where they were introduced. This, at least, is what always happens with the frog, even when the substance is introduced in the solid state, it being understood that it is easily soluble in the interstitial fluids of the animal economy. It is through not having taken sufficient note of this fact that many experimentalists have made very lamentable errors, with regard to the physiological action of certain toxic substances. Thus, it has been asserted that the soluble salts of copper mercury, etc., are poisons acting on the heart. It is easy to give prominence to the error which has been committed, and to show how it might be avoided. Sulphate of copper, for instance, has been considered by M. Armand Moreau as a cardiac poison. He introduced this substance under the skin of the back of several frogs, and he saw the heart stop before the peripheric nerves had lost their physiological properties; but if the poison had been introduced into a point of the body distant from the heart, the same result would not have been produced. M. Vulpian here relates two comparative experiments made in his laboratory. In one, a crystal of sulphate of copper was introduced under the skin of the back of a frog; whilst under the skin of the lower part of the leg of another frog a similar crystal was introduced. The first frog died immediately after the experiment; and M. Vulpian thinks it probable that, according to his own experiments and M. Moreau's assertion, the heart stopped while the nerves and the muscles of the limbs had preserved their physiological properties. The other frog survived, and was shown by M. Vulpian to his pupils at the next lecture; only the foot and leg which had been in contact with the sulphate of copper were green and cadaveric. If, in the frog, of which the dorsal region was placed in contact with the sulphate of copper, the heart stopped, it was because that substance, dissolving by degrees in the lymphatic fluid, penetrated by diffusion through the wall of the heart, and acted directly on the myocardium. It is even quite certain that the sulphate of copper would have

in this frog attacked the spinal marrow by the same process, and would have destroyed its physiological properties. Thus certain metallic salts diffuse themselves with great rapidity throughout the whole extent of the body, and destroy the physiological properties of the muscles *in situ* by chemical action. These salts are classed as muscular poisons, which is also an error proceeding from the same source. It is necessary to avoid this diffusion of soluble substances as much as possible when we make experiments on frogs, and for this purpose two indispensable precautions should be taken. The toxic substance should in the first instance be introduced as far as possible from the heart and the nervous centres. The importance of precaution with regard to the nervous centres, is shown by the experiment made in 1842 by Stilling, who showed that the characteristic effects of strychnism could be obtained by introducing strychnine under the skin of a frog from which all the viscera, including the heart, had been removed. It is very evident that in this case strychnine produced its action after having impregnated all that remained of the frog at the same time as the medulla. With regard to the heart, M. Vulpian reminds us of his observations on sulphate of copper, and states that he could cite numerous other instances. The toxic substance then must be introduced under the skin of one of the hands or feet. The second precaution to be taken consists in never injecting a large quantity of fluid. If a cubic centimetre of water be injected, the danger of errors which should be avoided is incurred. It is by thus injecting solutions of metallic salts that many substances which have no action on the muscles through the medium of the circulation have come to be classed amongst the number of muscular poisons. The substance to be tried, then, should be introduced either in the solid state or in the most concentrated possible form of solution, so as to allow but a very small quantity of fluid to penetrate under the skin. The characteristic physiological action of a poison or a drug only takes place with certain agents in fixed determinate doses. If the dose of certain substances be too strong, the animal under experiment may be killed without producing the effects which truly characterise the physiological action of these substances. MM. Gréhaut and Duquesnel's experiments on aconitine are an example. These experimentalists, in fact, have shown that, if a weak dose of crystallised aconitine (the twentieth part of a milligramme) be injected under the skin of a frog, effects analogous to those of curara are produced; that is to say, an abolition of the motility of the nerves, whilst the muscular contractility is still intact. If, on the contrary, a solution of a milligramme of the same substance be injected, the same effect is not produced. Now it is easy to see that this difference of action is referable to the fact that, in the second case, the heart stops under the influence of aconitine before this poison has had the time to abolish the influence exercised by the motor nerves over the muscles.

The physiological action of poisons is a field of research which has not been completely explored; and in the labours undertaken on this subject, a certain number of errors are met with which will be pointed out in due course. The researches of M. Claude Bernard on poisons and drugs have served as a basis for the classification of these substances. They have been classed as poisons of the motor nerves, poisons of

the sensitive nerves, poisons of the muscles; but M. Vulpian thinks that this classification is very open to objection. He is not disposed to allow the existence of toxic agents which would kill the motor nervous fibre, which would annihilate its property during the life of the animal by the medium of the circulatory passages, and of which substances curara would be the type. According to him, curara, at least at the outset of its action, leaves the physiological property of the motor nervous fibre, the neurility, perfectly intact, as it leaves intact the primary muscular physiological property, contractility. At a certain stage of its action it, so to speak, breaks the physiological continuity between the nervous fibre and the primary muscular fasciculus, so that the excitations which traverse the nervous fibre can no longer communicate themselves to the muscular fasciculus; it must, however, be particularly noted that there is not at this moment any abolition of the physiological property of the nervous fibre. The modifications which take place throughout the whole extent of the nervous fibre under the influence of excitants, in a healthy animal, are again produced in a curarised animal when the motor nerves are irritated by mechanical or galvanic exciting agents; but the muscle, though still irritable, is no longer provoked to contraction by these excitations. There is an obstacle between the two elements which stops all communication. Neither does strychnine kill the sensitive fibres of the nerves. It excites and exalts the properties of the grey matter of the medulla; tetanic convulsions make their appearance; then, after a certain period of strychnic tetanus, the animal (frog) falls into a complete state of relaxation. But even then it is easy to demonstrate that sensibility is preserved.

Finally, if it be true, which is doubtful, that there are any muscular poisons, these poisons are vegetable substances (digitaline, upas antiar, veratrine, etc.) or animal substances, the venom of the frog, and of the triton or water-salamander. It is inaccurate to place in this group the metallic salts. Sulphocyanide of potassium itself, which has been considered as a type of this kind of toxic agent, only destroys the properties of the muscles when it enters directly into contact with them; it does not seem capable of producing the same effect when it diffuses itself throughout the organism by way of the circulation. M. Claude Bernard himself, it should be remarked, has made some reservation as to the *modus operandi* of this substance. But physiologists who have repeated his experiments have been more decided on the subject than he has. M. Vulpian observes that the present remarks on sulphocyanide of potassium are not novel; he published them long since, and holds the same opinions with regard to the generality of salts which have been very erroneously termed muscular poisons.

The next lecture will treat of jaborandi, now, in M. Vulpian's opinion, justly occupying much of the attention of the medical world.

(To be continued.)

MINOR ON ERYSIPELAS AND CHILD-BED FEVER.

The author of a review in the *American Journal of Medical Sciences* for April, 1875, of Dr. Minor's work on 'Erysipelas and Childbed Fever,' writes as follows.

The design of the author in this work will be seen by the following quotation:—'An inquiry into the

connections said to exist between child-bed fever and erysipelas; also a short account of both diseases as they prevailed sporadically in the United States during the census year 1870, and an appendix containing the history of a puerperal fever epidemic observed in south-western Ohio, in the winter of 1872' (p. 5).

Dr. Minor's special attention was directed to this subject by the difference of opinion manifested in the Cincinnati Academy of Medicine, during a discussion on the question: Should a physician attend a case of labour, who has recently been in attendance upon patients suffering from erysipelas?

After some remarks upon the history of puerperal fever and its epidemics, and upon the epidemics of erysipelas which were more or less coincidental with the former, the author takes up the old battle subject of contagion, a question which ought to have been set at rest long ago, but which we presume must, from the character of the human mind, always have its advocates and opponents, although it has to be admitted that those who believe in its potent influence can present an array of historical facts not at all easy to overbalance or controvert.

The question of the instrumentality of physicians and nurses in conveying a mysterious miasm, capable of inducing peritoneal inflammation in parturient women, was at one time a very active one in Philadelphia, and gave rise to the publication in the *American Journal of Medical Sciences*, and several medical works, of numerous valuable papers, which collectively afford an exceedingly important, if not almost exhaustive record. The moving spirit in this discussion originated with the late Dr. David Rutter, who was so unfortunate as to meet in his own private practice, with ninety-five cases of puerperal fever with eighteen deaths, in a period of four years and nine months (1841-1846), and at a time when there were very few cases in the hands of other physicians. The visitations of the disease at the Pennsylvania Hospital on several occasions, and at the Philadelphia Hospital, added to the general interest of the subject.

Some of the more important testimony in proof of contagion in this disease and its intimate connection with erysipelas are:—

1. Discussion at the College of Physicians, of Philadelphia, reported in the October number of the *American Journal of Medical Sciences* for 1842 (pp. 410-418).

2. Puerperal fever cases reported by Dr. Robert Storrs, of Doncaster, England, showing the propagation of the disease at his hands, from a case of gangrenous erysipelas, followed by repeated abscesses requiring the lancet (*Ibid.*, January, 1843).

3. Notice of a malignant epidemic which prevailed in the lying-in department of the Philadelphia Hospital, in March and April, 1842 (*Ibid.* p. 244, *op. cit.*) Out of nine children whose mothers had puerperal fever, five died of peritonitis in about a week after birth.

4. Contagiousness of puerperal fever, by Dr. Oliver W. Holmes (July, 1843, p. 260). This paper contains quite an array of cases bearing upon the connection between the contagion of erysipelas and puerperal fever, and their power of interchange.

5. Drs. Hall and Dexter's account of the erysipelalous fever of Vermont and New Hampshire (January, 1844, p. 13.) . . . This is an interesting and valuable paper, showing the remarkable pathological connections which exist between some of the

types of epidemic erysipelas and puerperal fever. 'The most fatal results, for the most part, were to be anticipated in the affection of the internal organs, particularly the bowels and uterus; and during the season when the epidemic might be said to be at its height, not one in seven escaped, who had disease of the last-mentioned organ' (p. 191).

Those who are only familiar with erysipelas as a cutaneous malady, can form but a very imperfect estimate of that terrible type which is so allied to peritonitis as we find it after parturition, that some pathologists have been inclined to term the latter, 'malignant internal erysipelas' (p. 19). Erysipelas in fact will attack skin, connective tissue, intermuscular laminae, the mucous membranes, serous cavities, and many important viscera, such as the uterus, liver, intestines, etc. 'In the county of Caledonia, Vermont, thirty cases of puerperal peritonitis occurred, only one of which recovered. And in Bath, New Hampshire, containing a population of 1,500 to 1,600, twenty mothers died from puerperal peritonitis, and about forty with erysipelas' (p. 21).

In 1843, the cases in Dr. Rutter's practice amounted to forty-five; whilst at the same time Dr. William Klapp, who lived and practised in the same section of Philadelphia, several times having labour-cases in the same row, did not meet with one instance of the disease in two hundred parturient women, as he himself informed the reviewer. As there were no evidences of the disease being properly an epidemic, either from its relative fatality or general distribution among obstetricians, the misfortunes of Dr. Rutter excited a great deal of interest, and contagionists and their opponents warmly discussed the questions involved. Those interested in the matter are referred to the *American Journal of Medical Sciences* for October, 1842, p. 412; Charles D. Meigs, on *Diseases of Women*, p. 590; and Churchill, on *Diseases of Women*, edited by Condie, p. 618.

Dr. Rutter, to rid himself of the mysterious influence which appeared to attend upon his practice, left the city for ten days, and before waiting upon the next parturient case had his hair shaved off, and put on a wig; took a hot-bath, and changed every article of his apparel, taking nothing with him that he had worn or carried, to his knowledge, on any former occasion: and mark the result. The lady, notwithstanding that she had an easy parturition, was seized the next day with child-bed fever, and died on the eleventh day after the birth of her child. Two years later, he made another attempt at self-purification, and the next case attended fell a victim to the same disease.

Dr. Condie says (*op. cit.*):—'But he was charged with being a carrier of contagion. How could he carry the cause? What was the cause? Was it some ozone that stuck to his hands or coat?'

Dr. C. D. Meigs remarks (*op. cit.*):—'Does the doctor generate and distil the poison, or merely transfer it? If he transfers, why don't I also diffuse it? We are equally men, equally clothed. No, gentlemen, you do not carry the poison; you are merely unhappy in meeting with such accidents through God's providence.'

Now suppose we should state, as we do upon the authority of an obstetrical contemporary of Dr. Rutter, that, at the period referred to, he was the subject of an obstinate muco-purulent coryza, would not that give a reasonable solution of the mystery? Was his pocket-handkerchief not capable of conveying septic poison through his hands to the patient?

Some would say no. But what says M. Chauffard, of Paris, as quoted in the last number of the *American Journal of Medical Sciences*, p. 287? Every suppuration, every disease which produces morbid discharges, if in the vicinity of women in child-bed, will give rise in the latter to puerperal fever; and he says he has particularly noted the effects of abscess, purulent ophthalmia of infants, and erysipelas. The very successful and distinguished ovariotomist, Mr. Spencer Wells, is in the habit of exacting a written and signed statement from each visitor to his operations, to the effect that he has not been in attendance upon any case of zymotic disease. Ask Dr. Goodell, why he has not had a visitation of the fever among his cases at the Preston Retreat. He recognises the danger that lies in infection and contagion, and acts accordingly, using every precaution to prevent the possibility of septic or other poisoning, manual or local.

Dr. C. D. Meigs states, page 591:—'Seeing that I could never convict myself of being the means of spreading the contagion, I remain incredulous as to the contagiousness of the malady.'

It may be entirely coincidental, but we well remember a case upon which a brother physician put an entirely different construction. An eminent obstetrician stated to the writer, that Dr. M. was called in an emergency to deliver a patient of his, after he had left her a short time, the labour having been unexpectedly hastened in his absence. When he found what had been done, he remarked to his wife on reaching home, that he feared for the lady and anticipated trouble for himself, because Dr. M. had been called from an opposite dwelling, where he was in attendance upon a case of puerperal fever. We do not say that Dr. M. took the disease to her; but she was shortly seized with it, and made a narrow escape for her life. A celebrated obstetrician, who placed no credence in contagion in any disease, once said to the reviewer, upon discovering that one of his patients (and he had had a number of cases) had puerperal fever, 'Well, Doctor, this is always my unfortunate luck.' We accounted for this case, from the fact that his assistant in the labour had been dressing patients under surgical treatment; no doubt a fruitful source of the disease in the lying-in wards of many a general hospital.

Dr. James Blundell, in his *Principles and Practice of Obstetric Medicine*, p. 551, remarks:

'Remember that the facts affirmative of contagion are so strong, that on this affirmation it becomes our duty to act.'

In the records of puerperal fever, we shall find many instances, where the disease has appeared in cases of sudden emergency, when the attendant has not had time, or has failed, to make the proper precautionary ablutions and changes necessary to prevent risk to his patient.

Seventy pages of the work of Dr. Minor are taken up with a critical examination of the census reports of the American States and Territories for the year 1870, touching the mortality from puerperal fever and erysipelas; the geographical position, altitude, temperature, and rain-fall being given in each case. From this investigation it will appear that there was no epidemic of either malady at any point that year; that the two generally kept pace more or less with each other; that they were much less frequent among the white race than the black; and that they were most often met with in the spring months. The whole mortality amounted to 3,162

from erysipelas, and 1,828 from puerperal fever, in a population of nearly 39,000,000; and the largest proportion of deaths from each malady was in the month of March, which is memorable for its damp, cold winds.

In 1872 and 1873, puerperal fever and erysipelas prevailed as an epidemic in Cincinnati, Ohio, the deaths being 122 of the former, and 68 of the latter, against an annual average for the previous five years, of $13\frac{3}{5}$ and $13\frac{1}{5}$ respectively. The history of this epidemic gives some curious evidences of the interchangeable character of the two diseases.

'Dr. A. loses a patient from puerperal fever on the — of July; duration of illness, eight days. Six days afterward another "death-certificate," puerperal fever; duration of illness, eight days. On August, "death-certificate," from erysipelas. Four days afterwards, "death-certificate," from puerperal fever; duration of illness, six days. Several other instances of the same character are quoted, with regard to other physicians' (p. 116).

'It is a sad commentary on this last epidemic, that a few men who attended cases of erysipelas and puerperal fever promiscuously, should have been most unfortunate in their practice. On the contrary, we notice some physicians, having a large practice, who lost not more than one or two cases of puerperal fever, and no erysipelas cases at all. I think the majority of our physicians refuse to attend confinement cases, when they have erysipelas or puerperal fever cases on their hands' (p. 117).

Dr. Minor sums up the results of his investigations as follows.

1. 'Erysipelas and puerperal fever seem to prevail together throughout all the States.

2. 'Any marked increase in any locality of one disease, seems to be accompanied by a corresponding increase of the other.

3. 'Where histories of past epidemics of either disease are obtainable from any of the States, the seeming connection of the two diseases was noticed by physicians at the time of such epidemics, and remarked on.

4. 'For these reasons we are, I think, justified in concluding that there is an intimate connection existing between puerperal fever and erysipelas.' (p. 119.)

From a study of the Cincinnati epidemic, he makes the following deductions.

'Where an isolated death from puerperal fever was noted outside of the infected districts, a corresponding death from erysipelas was noted in the same locality. This was almost invariably the case.

'Infants die of erysipelas shortly after or before their mothers die of puerperal fever.

'A few physicians, attending puerperal fever cases and erysipelas cases at the same time, as exhibited by the death-register, were most unfortunate in their practice.

'Physicians having large obstetrical practices, who are known to believe in the doctrine enunciated regarding the connection of puerperal fever and erysipelas, make an exhibit of but few death-certificates from either cause' (p. 120).

The following statement of Dr. Minor is of considerable interest and importance.

'An epidemic of scarlet fever is at this date (June, 1874) prevailing in this city, although now happily on the decline. This epidemic commenced in May,

1873, after the subsidence of the puerperal fever epidemic. No month was exempt from scarlet fever, although there were only fifteen deaths from the disease during the first four months of the year. Only one of these occurred in April. After that, the deaths from scarlet fever increased each month, until there were from it 113 deaths in November, and 108 in December. The total deaths from this cause were 410' (p. 126).

Dr. Braxton Hicks remarked before the London Obstetrical Society (*Trans.*, vol. xii. 1870): 'There is no doubt that scarlet fever and erysipelas have much affinity; indeed, some have suspected them to be but a slight modification of the same poison, apparently interchangeable.'

But what says the Health Report of Cincinnati? In 1874 (up to June 1) puerperal fever did not prevail; less than the usual number of cases being reported; and the same is said of erysipelas. From May, 1873, to June, 1874, there were about 800 deaths from scarlet fever; and the number of cases was computed at from 6,000 to 8,000.

If epidemic puerperal peritonitis is due to the same peculiar poison which produces erysipelas, the peritoneal variety of which closely resembles it, then it must result from a combination of certain conditions and circumstances in and around the patient. Traumatic disturbance, acting upon a system peculiarly susceptible of erysipelas, will readily produce it, if the state of the atmosphere, the physical health of the subject, and his hygienic relations are favourable to its approach. We had one female patient who had several attacks of erysipelas in her left arm, but never in any other region; and by far the most severe one was excited by the prick of a needle in the index finger. Another subject, a boy of seventeen, with a penetrating wound of the thigh, had seven attacks of erysipelas at short intervals, due, apparently, to attempts made by stimulating dressings to cause the wound through the skin to granulate and heal over; for under a very simple application there was no renewal of the inflammation, and the parts cicatrised.

There are seasons when, in a hospital, not only the slightest wounds become erysipelatous, but the disease will attack, as we have seen, cases under simple mechanical treatment, in the most severe and fatal form; such, for example, as a leg undergoing straightening of the knee by a screw-splint, for partial ankylosis, etc. . . . Let a parturient woman have induced in her the same susceptibility, and her utero-placental laceration, like an amputated limb, will offer all the traumatism requisite as a starting-point for a fatal puerperal peritonitis. Increase this danger by an exposure to the infection of this disease, or erysipelas, and she may have the former without any special susceptibility other than the parturient state often produces. Expose her again to atmospheric or manual contamination from septic poison in the form of purulent discharges, or the taint of the autopsy, and you have puerperal septicaemia or phlebitis. It matters little, except for scientific interest, whether epidemic child-bed fever is a disease of multiform character, or whether its varieties are determined by the manner of its production, for all have more or less a fatal tendency under the most approved treatment; but it concerns us to determine how to protect the patient by precautionary and prophylactic measures.

ANATOMY AND PHYSIOLOGY.

SORBY ON A MICROSCOPE SPECTRUM APPARATUS.—Though Sorby's paper (*Monthly Microscopical Journal*, May, 1875, p. 198) has no direct medical bearings, we refer to it on account of the method recommended for expressing the position of absorption-bands, which is equally applicable to spectral analysis when used for physiological or for medico-legal purposes. Mr. Sorby's well-known method of measurement is to compare the position of the bands in the absorption-spectrum with the dark bands produced in light passing through a quartz plate interposed between two Nicol's prisms, the thickness being so regulated as to give twelve bands in a convenient position. This method was open to several objections [especially, we think, the difficulty of obtaining scales strictly comparable with one another.—*Rep.*] Mr. Sorby now proposes to express the position of all bands by a number representing the actual wave-length at that part of the spectrum. For this purpose he has constructed a table giving the wave-lengths of every one-eighth division of his quartz interference-scale so that, after having measured the position of any part of the spectrum by means of this scale, he can by the use of the table at once express everything in terms of millionths of a millimetre of wave-length. He proposes to publish this table and give with it the means of correction, so that, in case anyone should have a quartz scale not accurately corresponding with this, the measurements may still be expressed in accurate wave-lengths.

[The reference of absorption-bands in the spectrum to wave-lengths, though not new (see Jäderholm, *LONDON MEDICAL RECORD*, April 14, 1875, p. 234), has apparently not been made practicable before in microscopic researches. If systematically carried out, it would greatly increase the value of the micro-spectroscope; the want of a satisfactory scale of reference having been the chief objection to the use of this instrument.—*Rep.*]

RICHARDSON ON DIAGNOSIS OF BLOOD-STAINS.—Dr. J. B. Richardson (*Monthly Microscopical Journal*, May, 1875, p. 213, and *American Journal of Medical Sciences*) refers to Dr. Woodward's criticisms on his alleged microscopical distinction between human blood and that of the dog (*LONDON MEDICAL RECORD*, March 17, 1875, p. 165). Dr. Richardson fully admits the force of Dr. Woodward's criticisms, and only urges, as before, the danger of publishing truths of which an improper use might be made in the defence of criminals. He also contends that alterations of size or form due to drying are much less obvious in the case of a thin film of blood than in large masses. J. F. PAYNE, M.B.

OTT ON THE ACTION OF LOBELINA ON THE CIRCULATION.—Dr. Ott has performed some experiments with the alkaloid of *Lobelia inflata* in Professor Bowditch's laboratory at the Harvard Medical School. It was a dark oily liquid, heavier than water, with a tobacco-like taste and smell. He dissolved it in water acidulated with acetic acid, the solution being carefully neutralised before injection. Six experiments were performed on curarised rabbits; the inference drawn from them being that lobelina, in small doses, raises the blood-pressure by exciting the peripheral vaso-motor system; the pulse being

temporarily reduced in frequency, and subsequently quickened. [The inevitably complex conditions of the experiments, which are fully described by Dr. Ott, render it necessary that they should be repeated and varied before even this limited inference from them can be regarded as established.—*Rep.*]

E. BUCHANAN BAXTER, M.D.

PATHOLOGY.

TUKE ON AFFECTIONS OF THE NEUROGLIA.—Dr. Batty Tuke, in the sixth Morisonian lecture (*Edinburgh Medical Journal*, April, 1875), considers the different forms of disease of the neuroglia. Having previously considered the cerebral disturbances due to variations in the blood-supply, he states that the idiot, whether the well-recognised imbecile or merely the subject of that form of idiocy which manifests itself by perversions of the moral sense, is so in consequence of derangements in the cells and fibres of the brain; that in many instances the brain is defective and on a par with the half-withered limbs. Simple melancholia without excitement, and those cases where there are found torpor and stupidity, thick speech and a slobbering mouth, with loss of reflex action, and general anæsthesia, and conditions of true primary dementia, are due to lesions or changes in the neuroglia. In the latter cases, often spoken of vaguely as cases of organic brain-disease, there are to be found either sclerosis or a colloid degeneration of the neuroglia.

The neuroglia is subject to certain changes from congestion and blood-stasis in cases of chronic insanity. The different consistence of various brains, recognisable to the touch, is due to changes in the amount of this connective tissue or packing material. The different changes in the neuroglia may be grouped as follows:—First, a general increase of its protoplasmic material; second, a disseminated sclerosed condition; third, a form of sclerosis which has been termed miliary sclerosis; fourth, an increase of its finely fibrillated texture; fifth, a colloid form of degeneration; and sixth, atrophy. To the first form belong the enormous brains found in some idiots; the increase is simple connective tissue. Such a brain may weigh sixty ounces. In such a brain the nerve-fibres are seen lying in fasciculi, consisting of four, five, or six strands separated from one another by very clear plasma, in which are more than normally numerous nuclei, and a firm fibrillar structure. The second form has been described as grey degeneration, or as *sclérose en plaques disséminées*. Here there are light grey tracts, recognisable by the naked eye, of various shapes and sizes, which occasionally present themselves in the brains of chronic dementes. They occur mostly in the motor tract, in the pons and medulla, in the spinal cord, and in the white matter of the hemispheres, where they exist occasionally in widely spread areas. In transverse sections the axicylinders are indiscernible, and the field of the microscope is occupied by a finely molecular and fibrillated material embedded in a cloudy homogeneous plasma. Miliary sclerosis is a disease of the nuclei of the neuroglia. There are three stages of the malady; in the first the nucleus becomes enlarged, and throws out a homogeneous plasma of milky colour. In the centre of these semi-opaque spots the enlarged nucleus can still be detected. In the second stage the morbid plasma becomes distinctly molecular

in character and permeated by fibrils. In well advanced cases, the plasma seems denser at the circumference of the spots than at the centre, and a degree of absorption of the contiguous nerve-fibres is evident. In the third stage, the molecular matter becomes more opaque and contracts on itself, the boundaries become puckered and irregular in outline, and the material often falls out of the section, leaving ragged holes. These holes can not be mistaken for the smoothly rounded or oval perivascular spaces. The very fine fibrillar stroma of the neuroglia, which in health can with difficulty be distinguished by the aid of most powerful lenses, often presents itself in sections of the brains of the insane as a distinct mesh-work under comparatively low powers. The spider-like cells of Deiters show themselves with great clearness. In colloid degeneration, circumscribed semi-translucent spots, with well defined edges and molecular contents, show themselves in the white matter contiguous to the cortical substance. In extreme cases, the appearance under the microscope resembles that of a slice of sago-pudding. This is a degeneration of the nuclei of the neuroglia. The amyloid bodies of Virchow are a modification of the granules of the granular layer. After explaining that the other forms of disease of the neuroglia must, for want of time, stand over till another year, Dr. Tuke concludes by stating: 'It is in the mortuary and the workroom that the arcana of cerebral pathology will be disclosed; the section-knife and the microscope will, at no distant period, lay open secrets which the iteration of theory by the abstract philosopher can never discover.' J. MILNER FOTHERGILL, M.D.

MIERZEJEWSKI ON CEREBRAL LESIONS IN GENERAL PARALYSIS.—Dr. Mierzejewski, of Petersburg, in the first place (*Archives de Physiologie*, March and April, 1875) goes over the opinions of various writers upon the normal elements of brain-structure, and then passes in review the lesions of the vessels, of the interstitial substance, and of the nerve-elements in individuals attacked with general paralysis.

The muscular changes, he states, are more constant and more profound than those of the nerve-substance. They are not uniform, but are more obvious in some than in other parts, and at different stages of the affection. In the early stages the most distinctive appearance is the presence of an increased number of nuclei on the walls of the vessels, constituting a subadventitial extravasation;* at a more advanced stage miliary aneurisms, with rupture of vessels, thickening of their walls, and fatty degeneration of the vessels, are observed. Dr. Mierzejewski holds also that there is a new formation of capillaries in this disease, and gives drawings illustrative of his opinion as opposed to those observers who regard these appearances as simply cellular prolongations.

Hæmorrhage into the tunica adventitia is an appearance that the author has frequently noticed in cases that have run a rapid course. The vessels around which it was found had not undergone any change. In cases more advanced, the presence of extravasation is often accompanied with the multiplication of oblong longitudinal nuclei (middle coat

of vessel) and of transversely oblong nuclei (median coat), distinguishable from the elements of the extravasation.

The blood-corpuscles, if few, may disappear; but if more abundant, those left from the extravasation undergo a retrogressive change, leading to disorganisation of the vessels or a chronic inflammation. A curving of the vessels on themselves within the tunica adventitia is noticed also by the author—as it has been by Sankey and others.

The true miliary aneurisms, Dr. Mierzejewski remarks, are always preceded by 'periarteritis;' the coats of the arteries are fused together, the muscular coat being deficient. The contents of the aneurisms are blood-corpuscles and leucocytes, fat-granules and hæmatoidin when the change is further advanced.

Extravasation of blood in the cerebral substance has also been observed by the author around the capillary vessels. Fatty degeneration of the vessels is also described as occurring under the influence of inflammation—the 'inflammation interstitielle' of M. Magnan. This inflammation may be divided into three stages; in the first there is a marked proliferation of the nuclei of the connective tissue. The author describes several forms and sizes of these proliferated nuclei, and then notices, in the second stage, numerous opaque spots, of a homogeneous aspect, irregular in size and form, and presenting distinct outlines, taking the carmine-dye deeply, and in many instances sending off irregular processes, or filaments which form a network. These filaments Dr. Mierzejewski regards as coagulated fibrine. Branching cellules are also noted as existing in the brain-substance, differing from those found in healthy structure. A case recorded by M. Charcot is quoted as confirmatory of the opinion that ramifying or spider-cells are pathological. In this case, one of syphilitic paralysis, M. Charcot found a centre of grey degeneration in the pons Varolii, in which were found cells resembling those described by Dr. Mierzejewski. These cells are regarded as being made of connective tissue fused by coagulated fibrin.

With reference to changes in the nerve-elements themselves, Dr. Mierzejewski has observed that the more obvious changes are to be found in nerve-cells (*cellules ganglionnaires*). Where these present a pathological condition, he states that there is generally an accumulation of the cell-elements near or around them. In advanced disease the nucleus becomes disintegrated, and the cell is filled with pigmentary granules which do not take the carmine tint. In some, this granular matter has been soluble in ether. The axis-cylinders resist the change, except that they are supposed to be susceptible of hypertrophy, and present oval enlargements, giving to their course a beaded appearance.

[The author's observations are accompanied by three plates, containing forty-six coloured illustrations, which amply explain the text.—*Rep.*]

W. B. KESTIVEN, M.D.

ORTH ON TUBERCULOSIS.—Orth's lecture (*Berliner Klinische Wochenschrift*, no. 12, 1875) is in answer to the objections brought by Friedländer against Buhl's view of the secondary infective character of tuberculosis, and against the evidence from experimental production of tubercle (*LONDON MEDICAL RECORD*, January 27, 1875, p. 51.) Orth maintains, in opposition to Friedländer, that the relations of caseous masses and tubercles in the body accord

* The author notes that he employs the word subadventitial to point out that there exists no lymphatic spaces in the brain but the adventitial coat; quoting Dr. Batty Tuke for this view (*Brit. and For. Med. Chir. Rev.*); see also the same opinion urged in the *St. Barthol. Hosp. Reports*, 1872.

perfectly with Buhl's theory, and that tubercles produced by experiment are true tubercles. The former position is, he thinks, specially supported by the local occurrence of tubercles around caseous masses, either at one spot only or as a part of general tuberculosis. The tubercles in such cases are found evidently older the nearer they lie to the caseous foci, and thus appear as if produced by an infective process gradually spreading outwards. In four cases (three being infants), caseous masses in the lung were thus surrounded by miliary tubercles in the pulmonary tissue and pleura. In another, an adult, there was thick cheesy pus in bone and adjacent muscle, with tubercles in the surrounding tissue. In another case there was no general tuberculosis, but extensive ulcers in the bladder and colon were connected with eruptions of miliary tubercles on the serous covering and in fibrous adhesions which had formed between the affected parts of the bladder and rectum. He also quotes a case of pulmonary phthisis where both pleurae were thickly covered with tubercles, and these had spread apparently by local infection through the diaphragm to the adjacent parts of the peritoneum, but to those parts only. In all these cases, Orth urges that the origin of miliary tubercle by local infection from the caseous or ulcerative foci is the explanation that naturally suggests itself, and is not a forced interpretation, as Friedländer contends. He also gives reasons to show why, in these cases at least, the hypothesis that the caseous masses were originally tubercular is inadmissible. The local process of infection he believes to be closely connected with the lymphatic system, while the more general infection, leading to general tuberculosis, takes place, on the other hand, through the blood, and only when the conditions are especially favourable and a considerable quantity of infective matter passes into the circulation.

Orth then criticises Friedländer's objections to admitting the nodules produced by experimental inoculation to be true tubercles. All nodules resulting from inoculation may not be tubercles, but some certainly are so; and, though they may not have giant-cells, those elements are not constantly present in true tubercles. The experimental tubercles possess, in fact, the same typical structure as genuine tubercles, though showing similar variations.

J. F. PAYNE, M.B.

RECENT PAPERS.

On Localisations in Cerebral Disorders. By Dr. Charcot. (*Le Progrès Médical*, April 24.)

Spinal Arthropathies. By Dr. Weir Mitchell. (*American Journal of Medical Sciences*, April, 1875.)

Pathology of Epilepsy. By Dr. Jewell. (*Chicago Journal of Nervous and Mental Disease*, January, 1875.)

Case of Polydactylia. By M. de Beauvais. (*Gazette des Hôpitaux*, April 24.)

MEDICINE.

LANDOUZY ON SCIATICA AND CONSEQUENT MUSCULAR ATROPHY.—In the March and April numbers of the *Archives Générales de Médecine*, this subject is discussed at length by M. Landouzy. His chief object is to show that the varieties of sciatica may be divided into two classes; the first of which consists of cases of disease of the function of the sciatic nerve, or neuralgia proper; and the second

of disease of the substance of the nerve, or neuritis, using this word to include all changes and not only inflammation. Of the characteristics of the second class, muscular atrophy is the chief, but hitherto its value in diagnosis and prognosis has not been felt, and it has not been carefully observed. It is generally explained as consequent on the intensity and duration of the sciatica; but M. Landouzy does not accept this explanation as satisfactory, and he cites a case in which a fortnight after the beginning of the disease the circumference of the thigh was found to have diminished one and a half inch, a diminution as great as in any case noticed of atrophy after long continued acute sciatica. Nor is the atrophy dependent on the want of exercise of the limb, for it sometimes occurs in patients who find their only relief in movement: nor does the theory of reflex action explain it, for that has been confuted by the experiments of M. Vulpian (see preface to Weir Mitchell on Nervous Diseases). M. Landouzy explains it as the result of such changes in the substance of the nerve as can hinder the transmission to the muscles of the trophic influence of the nerve-centres. Granted that such an explanation is correct, muscular atrophy may be taken as diagnosing disease of the substance of nerves from disease of their function, neuritis from neuralgia. M. Landouzy admits that this division is one rather of convenience than of essential difference, for he suspects that there is a change of substance of the nerves in all cases of neuralgia as well as of neuritis, but that in the former it is not sufficient to hinder the transmission of nervous influence. One frequent result of sciatica is the thickening of the skin and the superficial fascia in the limb affected.

This may conceal the slighter cases of muscular atrophy, and account partly for the representation of its rarity, which we find in Axenfeld and other authorities. As a rule, the superficial fascia is less firmly attached to the underlying muscle than is normal, and its thickness may easily be estimated by raising and pinching it.

The histological observations on the nerves in cases of sciatica with attendant muscular atrophy are too incomplete to furnish a certain explanation, but they tend to show that there is atrophy of the cylinder-axis and hyperplasia of the sheath of Schwann. This is the result common to all injuries of the nerve, whether from wounds, cold, rheumatism, lead-poisoning, or inflammation propagated from adjacent tissues (see M. Vulpian, *Archives de Physiologie*, 1871-1872, 'Influence des Nerves sur les Muscles'). What, however, is the condition essential to produce this atrophy, must be left, in M. Landouzy's opinion, to the histologists of the future. The pathology of the muscular atrophy is analogous; the fibrillae are atrophied, and there is hyperplasia of the areolar sheath. For this morbid condition of the muscle, M. Landouzy prefers to use the term dystrophy, and to reserve the word atrophy for the simple lessening of the diameter of the muscular fibres, such as is consequent upon want of exercise.

The review of twenty-six cases, of which an account is given at length, leads M. Landouzy to adopt the following classification in sciatica.

A. *Cases of Neuralgia Proper*.—In these the pain is sudden in its invasion, darting and intermittent; it is referred at first at least to one or more limited spots, and does not accompany the whole course of the nerve. The nerve is not swollen or painful when touched, and there is no muscular atrophy.

B. Cases of Neuritis.—In these the disease comes on slowly: its first stage is marked by a dull aching pain and numbness; afterwards there may be the acute intermittent pain of neuralgia proper, but there is also the continuous severe numbing pain following the course of the sciatic nerve; the nerve itself is swollen, and any pressure upon it is painful. Lastly, there is muscular atrophy roughly proportionate to the duration of the sciatica, and occasionally herpes or some cutaneous disease arising from defective nutrition.

That the sciatic beyond other nerves should be liable to this neuritis is the result, M. Landouzy says, of its being especially exposed to pressure in sitting, to chills owing to its superficial course, and to inflammations originating in the pelvic viscera. The same continuous pain and muscular atrophy which characterise neuritis are sometimes observed in some of the nerves which run from the brachial plexus, especially in the ulnar.

If neuritis be diagnosed, the prognosis is less favourable than in neuralgic sciatica; but cases of M. Vulpian are cited to show that nerves which have degenerated may regenerate completely both the cylinder-axes and the sheaths of Schwann; and on their recovery the recovery of the muscles follows.

The therapeutics of sciatica M. Landouzy does not discuss fully, but he is anxious to say a word in favour of the use of leeches to subdue the pain, and of continuous currents to restore the nerve to permanent health.

J. B. BRADBURY, M.D. (Cambridge).

SALES-GIRONS ON THE MODE IN WHICH THE CIRCULATION OF FÆCAL MATTERS IS RE-ESTABLISHED AFTER LIGATURE OF INTESTINE.—*La Revue Médicale* for March 22, 1875, contains a paper of extreme interest, which in the absence of any name we suppose must be attributed to the editor. He states that, whilst making experiments on the way in which temperature is affected by ligaturing the intestine, he was surprised to find that most of the dogs experimented on, after vomiting and obstruction of the bowels, and refusing their food, began gradually to recover after the fifth day; and about the tenth day they resumed their normal appearance, and all the functions of life seemed carried on as before. He thought at first that the ligature was not properly tied. This led him to make fresh experiments—with a similar result. He thinks the mechanism of recovery deserves special notice. When a segment (anse) of intestine is ligatured with silver wire, so as completely to obstruct its calibre, if the animal survive and be killed after ten days, it will be found that the portion of intestine is adherent to the abdominal wall, and to adjacent coils of intestine, by false membranes, which are easily torn, and often circumscribe little collections of pus. If, without disturbing the relations of the parts, sections are made above and below the portion ligatured, we can easily demonstrate, by injecting water, that the bowel is once more pervious. There is no perforation of the bowel, but a circular cicatrix shows where the ligature was applied—the two surfaces of intestine brought into contact by the ligature are, so to speak, welded or soldered together [sont soudées l'un à l'autre]. The calibre is normal, except that at the level of the cicatrix there is a slight circular constriction of the mucous membrane. The metal ligature is found attached to one side, and floating loop-like in the calibre of the bowel. It is easy to

understand that, under the influence of the peristaltic action of the bowels, the intestine is cut through by the ligature; but during cicatrization of the external coats, the mucous membranes have succeeded in separating, and thus the patency of the calibre is re-established. Two things help to bring about this result. The first is the thickness of the walls of a dog's intestines; and the other, the nature of the mucous membrane preventing the adhesion of two mucous surfaces.

This is, then, a true recovery. The cicatrix is a genuine cicatrix, made up of the three tunics; and is demonstrated to be so by microscopic examination. Similar results were obtained with hemplasties. It was once found that one of these was burst by the intestinal juices. An India-rubber ligature was found encysted, its elasticity doubtless causing this result. If, instead of including a loop of intestine, the ligature was simply tied round the bowel [en travers de l'intestine sans prendre un anse], the results were similar, but more rapid, five days sufficing for the process. [These observations appear to the reporter of extreme interest, as illustrating the probable mode of recovery in some cases of intestinal obstruction in the human subject; and as explaining the circular [annular] cicatrices sometimes seen in the intestines in *post mortem* examinations.—*Rep.*]

W. BATHURST WOODMAN, M.D.

LINCOLN ON A RARE FORM OF SPINAL PARALYSIS.—Dr. D. F. Lincoln relates in the *Boston Medical and Surgical Journal*, of March 25, an interesting case of spinal paralysis in an adult, closely resembling what is generally called 'infantile paralysis.'

The patient was a gentleman, forty-nine years of age, who had generally enjoyed good health, and whose habits were regular. The attack began one morning with a feeling of numbness and tingling, soon followed by weakness in the legs; this increased so much during the day, that towards evening he had to be helped into bed. In the course of the next two days, the weakness spread to all the voluntary muscles of the body except those of the face and eyeballs, and of the feet. There was not absolute paralysis of any muscle, but, as the patient lay in bed, he could not raise his head from the pillow, nor bend his knees, and the grasp of his hand was very feeble indeed. The paralysis was more marked on the left side than on the right. The muscles of respiration were not affected; he could speak and swallow well, and the bladder and rectum performed their functions as usual. There was no spasm or rigidity of any of the muscles affected, and no pain. Sensation, after the first day of the attack, was everywhere normal. The electric contractility of the muscles rapidly diminished, and at the end of three weeks was almost extinct; forty cells of a Daniell's battery only produced a feeble contraction of the rectus femoris, whilst faradisation produced no effect at all; there was considerable wasting of the paralysed muscles. Slight signs of improvement began to show themselves about six weeks after the invasion, but the recovery, though tolerably complete, was very gradual: the patient was confined to his house for six months, and it was some time longer before he was able to resume his business.

Duchenne was the first to recognise the fact that a disease, identical with what is ordinarily called 'infantile paralysis' may occur in adults; he pub-

lishes four such cases in the last edition of his 'Electrisation Localisée.' The subject has also been treated by Drs. Bernhardt and Westphal, of Berlin (LONDON MEDICAL RECORD, February 4, 1874); cases have also been recorded by Dr. Frey, in the *Berliner Klinische Wochenschrift* (see LONDON MEDICAL RECORD, 1874, pp. 83 and 778), and by Dr. Seguin in the *Transactions of the New York Academy of Medicine*. In some of these cases the invasion of the disease was accompanied by fever, and permanent paralysis and wasting of some of the muscles resulted, thus rendering the resemblance to the infantile disease even more marked than in that just recorded.

J. W. LANGMORE, M.D.

RECENT PAPERS.

- Researches on the Air Cure in Pulmonary Phthisis. By Dr. Vacher. (*Gazette Médicale de Paris*, May 8, 1875.)
 On the Hemoptoic Form of Diseases of the Heart or Cardiac Hemoptysis. By Professor Sée. (*La France Médicale*, May 8.)
 Note on a Case of Aphonia and Dumbness lasting Six Months, and Cured rapidly by the Application of Induced Electricity. By Dr. Grollemund. (*Revue Médicale de l'Est*, May 1.)
 Report on Cases of Pneumonia. By Dr. T. B. Peacock. (*St. Thomas's Hospital Reports*, vol. v.)
 Report of an Inquiry into the Conditions during Life of the Liver and Kidneys in Asiatic Cholera. By Dr. Chevers and Raj Mohun Banerjee. (*Indian Medical Gazette*, April 1.)
 Pythogenic Pneumonia. By Dr. Grimshaw and Dr. Moore. (*Dublin Journal of Medical Science*, May, 1875.)
 A Comparative Study of the Pulse and the Temperature in Typhoid Fever. By Dr. Belugon. (*Montpellier Médical*, May, 1874.)

SURGERY.

MAZZONI ON FIVE CASES OF RESECTION OF THE STERNUM AND RIBS.—Professor Mazzoni relates the following cases in his *Anno Secondo di Clinica Chirurgica*, Rome, 1874 (abstract in *Annali Universali di Medicina*, March, 1875).

Case 1. *Myxosarcoma in the Sternal Region: Extirpation*.—A countryman, aged fifty-five, a year previously perceived a small hard painless tumour over the middle of the sternum. In five months it acquired a circumference of nearly sixteen inches. The skin covering it was normal; it was adherent to the bone, and presented fluctuation at some points, being hard and painless to pressure in others. In removing it, it was found necessary to excise the sternum from the manubrium to the ensiform cartilage, along with portions of the second, third, and fourth costal cartilages. The mediastinum was exposed, and the pulsation of the heart could be seen. The wound was at first dressed with carbolic oil, afterwards with permanganate of potash. A diarrhoea which the patient had having been suppressed, the wound appeared to be healing favourably, when, fifteen days after the operation symptoms of pulmonary congestion set in, and passed into hypostatic capillary pneumonia, which ended in death. At the necropsy, the base of the wound was found covered with healthy granulations, and the posterior and inferior parts of both lungs presented indications of broncho-pneumonia.

Case 2. *Caries of the Sternum and of the First Right Rib*.—A young man, aged twenty-three, of lymphatic temperament, had three abscesses, one

over the anterior surface of the ensiform cartilage, another on the middle and internal part of the clavicle, reaching downwards as far as the third rib, and a third on the middle of the sternum towards the right side. After opening them, caries of the sternum was found to exist. Professor Mazzoni exposed by a semilunar incision the central part of the sternum, and removed it, the periosteum being preserved. The right end of the incision was prolonged as far as the end of the first rib, which was found to be carious, and was removed. The result of the case was successful; the healing was, however, impeded somewhat by the formation of a sinus passing from the sternum to below the breast.

Case 3. *Necrotic Caries of the Fifth, Sixth, and Seventh Ribs*.—A girl aged thirteen, of cachectic habit, had four years previously received a blow over the seventh right rib. She had an abscess, which, after opening, left a fistulous sinus through which were removed several pieces of bone. The opening did not close, and three years later she was taken into hospital. The right side of the chest, from the first to the ninth rib measured an inch more than the left, and the cutaneous veins were dilated. Professor Mazzoni removed about 0·8 inch of the fifth rib, 1·6 inches of the sixth, and 0·8 inch of the seventh. The wound was dressed with carbolic oil. The reaction was moderate, and ceased on the fifth day; nothing abnormal ensued and recovery was complete.

Case 4. *Caries of the Fifth Right Rib*.—A scrofulous boy, aged ten, who had already had enlarged glands, had caries of the fifth right rib in the axillary line. Dr. Mazzoni excised about 1·2 inches. There was considerable febrile reaction, but at the end of about a month healing was complete.

Case 5. *Caries of the Sixth and Seventh Costal Cartilages and of the Margin of the Sternum*.—A countryman, aged forty-four, who had not previously had an illness of importance, was attacked, after a fever which was believed to be rheumatic, with pain in the region of the sixth and seventh cartilages. An abscess of the size of a hen's egg formed, and, after opening, left a sore which refused to heal; besides which, there was a fistulous opening, leading to carious cartilage. The fistula having been dilated, the cartilages were resected. The wound cicatrised without general or local reaction; but not completely as a sinus was left, through which the edge of the sternum was felt to be denuded. This was removed, with the gouge, and the actual cautery was applied; after which, recovery was complete.

A. HENRY, M.D.

VOLKMANN ON THE TREATMENT OF FALSE JOINT.—Dr. Volkmann (*Berliner Klinische Wochenschrift*, April 26, 1875) describes a case in which the false joint was in the lower part of the left thigh, and resulted from non-union after complicated fracture.

About six months after the accident, the ununited fragments were exposed by an incision through the skin about five inches in length. The bones were found to be cylindrical and firm, the upper surface covered with rough osteophytic laminae, their ends as they overlapped being bound together by a loose membrane; moreover, from the apex of the upper and posterior fragment proceeded a strong fibrous cord about half an inch long, binding it to the underlying and anterior fragment. The extremities of both fragments were next removed by means of a 'keyhole' saw, so that the two portions of the thigh-

bone overlapped each other for about two inches. Then the hinder half of the anterior (under) fragment and the front half of the posterior (upper) fragment, in their long axes, were cut through for the same extent (two inches) with a chisel, so that these two extremities became step-shaped, and were easily and neatly adapted to each other.

The fragments so placed were bored through, and riveted together by means of two ivory pegs.

The external wound was brought together by sutures enclosed in a strong plaster of Paris bandage, with a trap-door, and the wound dressed by Lister's method. The pegs were removed seven weeks afterwards; they had become thinned and eroded. Eleven weeks after the operation the consolidation was such that a mechanical appliance could be fixed to the knee-joint. Beyond a shortening of about four-fifths of an inch, no deformity is to be observed.

EDWARD BELLAMY.

DELENS ON FRACTURE OF THE CLAVICLE.—In the March number of the *Archives Générales de Médecine*, M. Delens draws attention to certain cases of fracture of the clavicle in its middle third, caused by muscular contraction.

There is nothing original in the paper, which simply gives the histories of several cases which have been published from time to time, and summarises from these.

Nineteen facts are reported, and one instance is mentioned of fracture at the outer extremity of the bone, to show at the same time the possibility and the rarity of the occurrence. The right was in eleven, the left in five instances, the side injured. Owing to the periosteum remaining unlacerated, the displacement was inconsiderable, the bone bending forward at the site of its fracture. Of seventeen cases in which the sex is mentioned, eleven were men and six were women. In ten of the instances the patients were between twenty-five and sixty years of age. In most of the cases debility, scrofula, or syphilis seemed [as the author terms it] to have predisposed to the fracture. The muscular effort occasioning the lesion was often slight, as in closing a door or in playing at battledore-and-shuttlecock; or the fracture occurred during the convulsions of epilepsy. The precise mechanism of the lesion is unknown. The injury [as might be expected] is easily diagnosed; and, owing to the slight displacement from the non-laceration of the periosteum, rapid repair and little deformity result.

GEORGE W. CALLENDER.

RECENT PAPERS.

Case of Vaginal Rectocele. By M. D. Mollière. (*Lyon Médical*, May 9.)

Surgical Experiences in Military Hospitals in Japan. By Dr. Siddall. (*St. Thomas's Hospital Reports*, vol. v.)

Three Rare Surgical Cases. By Sydney Jones, M.B. (*Ibid.*)

Turbinated Corpora Cavernosa. By Dr. Bigelow. (*Boston Medical and Surgical Journal*, April 29.)

OBSTETRICS AND GYNÆCOLOGY.

TRASK ON INJECTION OF TINCTURE OF IODINE INTO THE CAVITY OF THE UTERUS IN HÆMORRHAGE AFTER DELIVERY.—The *American Journal of Obstetrics* (February, 1875) contains an interest-

ing article on this subject by Dr. James D. Trask. After referring to the diversity of sentiment entertained as to the safety of injections of the solution of the perchloride of iron in *post partum* hæmorrhages, he ascribes to Dr. Dupieris, of Havana, the credit of first employing injections of tincture of iodine for that purpose. (See *N. A. Medico-Chirurg. Review*, vol. i., Philadelphia, 1857.)

The following is a brief summary of what Dr. Trask seeks to prove.

1. A very considerable proportion of cases in which the injection of salts of iron has apparently saved life, has been those in which it accomplished this end not in virtue of its local styptic action, but because of its power to excite reflex action when cold, friction, pressure, etc., have failed.

2. When it produces coagulation of blood in the orifices of the blood-vessels, there is danger that the coagulation may follow the vessels into the substance of the uterus, producing dangerous thrombi, and that the blood already collected in the cavity of the uterus also may become converted into a hard, intractable coagulum which the uterus cannot expel, and which may, after a few days, decompose and give rise to septicæmia.

3. There is reason for believing that, as an excitor of dormant reflex action, tincture of iodine may be substituted for the iron with positive advantage, from its efficiency as an excitor and from its antiseptic properties.

If these points be established, the use of iron salts in a solution sufficiently strong to induce coagulation of blood in the uterine vessels should, at any rate, not be resorted to until tincture of iodine has been tried and failed.

Dr. Trask disavows the position of claiming positively for iodine a superiority over the iron. More facts are needed to warrant this. He has, he says, simply sought to present the considerations that render it extremely probable that the one will be found an advantageous substitute for the other, when it shall have received at the hands of the profession a sufficient trial.

KRUMPTMANN ON A CASE OF COMPLETE CONGENITAL CLOSURE OF THE VAGINA AND OF THE EXTERNAL OS UTERI, WITH CONSEQUENT HÆMATOMETRA AND ACUTE PERITONITIS.—Herr Krumpmann relates (*Medicinisch-Chirurgisches Centralblatt*, April 16) a case that came under his observation in a girl sixteen years old, who presented symptoms of acute peritonitis when first seen. On the subsidence of the urgent symptoms, an ovoid movable tumour was perceptible in the hypogastric region. As she had not menstruated, although the monthly menstrual molimen was present, an examination was made; the external genitals were well developed and normal; the hymen was imperforate; the vagina could not for a certainty be ascertained. The hymen was perforated with a trocar; a rudimentary vagina could be felt; but no menstrual flux came away on the removal of the trocar. The vagina was then dilated with sponge-tents, and the cervix, which was low down, could be readily felt. No external os could be found, although its position could be recognised. An opening, half an inch long, was made by a bistoury into the cervix, and about five and a half pints of grumous material expelled. A sponge-tent was placed in the wound; but the pain could not be borne, and it had to be removed. The patient made an excellent recovery, the uterine opening not closing.

She married two years afterwards, became the mother of four healthy children, and eventually died, fourteen years later, of cancer of the womb.

FLEISCHER ON THE INTERNAL AND EXTERNAL APPLICATION OF CHLORAL HYDRATE IN CARCINOMA UTERI.—Herr Fleischer (*Medicinisches-Chirurgisches Centralblatt*, no. 9, 1875, strongly advocates the use of this drug in this affection. He is in the habit of applying it locally in the following manner. The vagina being first of all well washed out with water injections, a piece of cotton-wool is dipped into a solution of chloral hydrate (two drachms to three ounces), and passed up to the carcinomatous surface; this is repeated every two hours; after the second, or third at the most, the character of the pain becomes altered, and the discharges less offensive. Its internal administration he prefers *per rectum*, as it is not so liable to become abused by the sufferer, and its effect can be better regulated, as it loses its effect much more slowly than by the mouth. Its chief advantage over morphia is that it has no confining effect on the bowels.

[Dr. Goodell, of Pennsylvania, also speaks highly of the local application of chloral, especially in reducing the offensiveness of the discharges.—*Rep.*]

ZAUNSCHIRM ON ELECTRICITY IN THE ASPHYXIA OF NEW-BORN INFANTS.—Dr. Zaunschirm (*Medicinisches-Chirurgisches Centralblatt*, April 16, 1875) reports a case where, failing to resuscitate an infant after delivery by the forceps, by the usual methods, he bethought himself to apply electricity. Having obtained an induction-instrument, he applied a feeble current, gradually increasing in strength, principally to the sympathetic nerve. With the first application of the pole, inspiration was produced; one pole was then applied partly to the larynx and partly to the neighbourhood of the neck; the second pole to the thorax. Soon the heart's action became stronger and more rhythmical, and the breathing changed and more natural. By the end of ten minutes, the child was completely resuscitated. He strongly recommends the adoption of this method in cases of severe asphyxia. W. C. GRIGG, M.D.

WILHITE ON TRISMUS NASCENTIUM.—Dr. Wilhite (*American Journal of Medical Sciences*, April, 1875) gives fourteen cases of this affection in support of the theory put forward many years ago by Dr. Marion Sims, that the disease is due to mechanical pressure on the medulla and nerves by an inward displacement of the occipital bone. This depression is liable to occur in cases of protracted labour, and too well ossified state of the fetal cranial bones, and is subsequently aggravated by the dorsal decubitus in the cradle and in the mother's arms.

The affection is described as of two forms, viz., acute 'trismus,' in which death takes place in two or three days or even less; and chronic, or 'trismoid,' in which the child wastes away gradually. In both the first symptom is inability to suck, which is stated to be pathognomonic of the disease. Of the fourteen cases related five were of the acute form, nine chronic. Of the former three, and of the latter five, recovered under treatment; the remainder died without it. Treatment consisted in keeping the child lying on one side or the other, instead of on its back, thus relieving pressure on the occipital bone.

W. B. CHEADLE, M.D.

RECENT PAPERS.

- Rupture of the Perinæum, with a Description of a New Operation. By Dr. Warren Brickell. (*American Journal of Medical Sciences*, April, 1875.)
 Puerperal Fever in Private Practice. By Dr. W. Hinds. (*British Medical Journal*, May 1.)
 On the Sericeps. By M. Poulet. (*Lyon Médicale*, May.)
 Contributions to the Determination of the Diminution of the Uterus after Delivery. By Dr. Serdukoff. (*Edinburgh Medical Journal*, May, 1875.)
 The Puerperal and Pyæmic Processes. By Dr. Hjalmar Heiberg. (*Obstetrical Journal*, May, 1875.)
 Reposition of the Prolapsed Funis Umbilicalis. By Dr. Braxton Hicks. (*Ibid.*)
 Retention of the Dead Fœtus in the Uterus. By Professor Herrgott. (*Revue Médicale de l'Est*, May 1.)
 On Cyst of the Ovary of Thirty-Four Years' Standing: Successful Operation. By Dr. Bouger. (*Gazette Médicale de Bourdeaux*, May 5.)

OPHTHALMOLOGY AND OTOTOLOGY.

GROSSMANN ON SYMPATHETIC OPHTHALMIA.—In the *Berliner Klinische Wochenschrift*, April 5, will be found a concise historical sketch, by Dr. Grossmann, of the phenomena which make up what is now termed sympathetic ophthalmia. According to this writer, the nature of the affection was first recognised by the Vienna School in the early part of this century, although it was Mackenzie who in 1844 first described a variety of sympathetic iritis. The writings of later surgeons, and especially those of Von Gräfe and Mooren, agree in the doctrine that the starting-point of the disturbance in the second eye is to be found in the presence of cyclitis in the eye originally injured or affected. In accordance with this, Dr. Grossmann gives a very complete clinical sketch of the symptoms of cyclitis, and enumerates at length the many circumstances under which it may take its origin, such as injuries of all kinds, with or without any external wound; also certain intraocular causes, such as tumours, detachment of the retina, anterior synechia, extensive posterior synechia, and the varieties of anterior staphyloma, most of which are not generally recognised as possible causes. As regards treatment, when once any structural alteration has taken place in the second eye, the removal of the offending eye must be promptly carried out. If performed sufficiently early, Grossmann has found that iridectomy will be of great use to the second eye, provided it be completely executed and to a considerable extent; otherwise it will prove of no service; and if its performance be delayed till the iris has contracted adhesions, or has become extensively altered in texture, the operation will be impracticable owing to the impossibility of removing any of the iris, and the probable result of such unsuccessful interference will be degeneration and atrophy of the entire globe. Should, however, the iridectomy be performed early enough, in the course of time, it may be of many months, the eye may regain some considerable amount of useful vision, although it is probable that extraction of the lens will have to be undertaken to bring about even this partial recovery. From many cases of the kind Dr. Grossmann chooses as an illustration of his remarks, the case of a man, aged twenty-three, who was struck in the left eye with a small splinter of iron; for this injury the man was under treatment for nine months, at the end of which time he resumed work,

but was compelled to discontinue it at the end of a week in consequence of the ciliary irritation which made its appearance in the right eye. These symptoms rapidly ripened into those of iritis, and he now came for the first time under the author's care. The left eye, which was blind, shrunken, and painful, was removed, and at once the symptoms in the other eye were alleviated; at the end of a month a large iridectomy was successfully performed, and a steady and still further improvement took place; in the result, the natural and healthy appearance was restored, and the patient regained very useful vision = $\frac{3}{8}$. Examination of the enucleated eye revealed a splinter of iron embedded in the ciliary region. Dr. Grossmann insists on the importance of publishing such cases in great detail, in order that those members of the profession who are not practising ophthalmic surgery may be sufficiently alive to the danger and to the insidious nature of this form of ophthalmia. BOWATER J. VERNON.

SIMROCK ON A NEW MODE OF PERFORATING THE MEMBRANA TYMPANI.—Dr. Simrock states, in the *New York Medical Record* (March 27), that he has been in the habit for some time past of perforating the membrana tympani, in most cases by means of strong sulphuric acid, instead of the ordinary needle. If the end of a fine probe, covered with a thin layer of cotton-wool and dipped in the acid, be applied to the drum membrane, an opening is produced almost instantaneously, and by rubbing the end of the probe over a larger field an aperture of any size can be made; in the latter case, the membrane quickly becomes dry and brittle, like tissue-paper, and can be readily removed. The application causes but little pain; in many cases the perforation may be effected without the patient being aware that any operation has been performed. Care must be taken not to use too much acid; a mere trace suffices. The advantage which Dr. Simrock claims for this mode of operating is, that the aperture remains patent for a much longer time than after an ordinary puncture. The latter generally closes in two or three days, whilst, of seventeen perforations produced by the acid, three remained open for four months, and none closed under a month; by a second application, the tendency to close is still further diminished. As regards the result of the operation, Dr. Simrock reports that, in seventeen cases, tinnitus disappeared in five; in nine it was so much diminished that the patients were no longer troubled by it; three were not benefited. Hearing was greatly improved in six cases, less so in four, and not at all in seven. J. W. LANGMORE, M.D.

POLITZER ON ADENOID VEGETATIONS IN THE PHARYNGEAL SPACE.—In nos. 3 and 4 of the *Allgem. Wiener Medizin. Zeitung* for 1875, Professor Politzer, in the report of a clinical lecture, describes the methods he employs for the removal of these adenoid vegetations which are found especially on the upper wall of the pharyngeal space, and which often complicate affections of the middle ear. As a means of diagnosis, he considers the index finger superior to the use of the pharyngeal mirror. The instrument which he uses for their removal is a ring knife with the cutting edge towards the centre. The knife, held in the right hand, being passed through the nasal cavity nearest the vegetation to be operated on, the left index finger is introduced into the mouth, and the ring placed by it on the swelling and firmly

pressed against it. The knife is now drawn towards the operator, cutting off the protruding part of the growth. The bleeding after the operation is not important, and quickly ceases under the injection of cold water through the nasal cavity. The operation is repeated till all the vegetations which can be felt by the finger are removed. Another method which he employs, is the application of fused nitrate of silver placed on a roughened silver probe. The pain occasioned by it he removes by the injection of a solution of common salt through the nostril.

DELSTANCHE-SOHN'S NEW FORCEPS FOR KEEPING THE EUSTACHIAN CATHETER IN POSITION.—For those who desire some means more than the fingers afford of keeping the Eustachian catheter in position, the forceps described by Dr. Delstanche-Sohn, of Brussels, in the *Archiv für Ohrenheilkunde* for March, may be useful. It consists of a flat piece of fish-bone of about two millimètres thick and one centimètre broad, bent while heated over a lamp into the shape of the letter M, with the ends of the long arms approaching each other, and then dipped into cold water. The ends are covered with small pieces of caoutchouc tubing, and placed so that one end presses on the side of the nose furthest from the catheter, and the other presses directly on the catheter, thus fastening it against the nasal septum. Dr. Delstanche-Sohn thinks this instrument has the following advantages. (1) It costs nothing, is easily applied, is of simple construction, and preserves for a long time, even with daily use, the necessary amount of elasticity; (2) it presses directly, and in the most advantageous direction, upon the catheter; (3) on account of its lightness and elasticity it causes no inconvenience to the patient; (4) it is prevented from slipping by the caoutchouc covering the ends; (5) it does not interrupt the breathing of the patient through the nostrils. W. LAIDLAW PURVES.

REVIEWS.

Notes d'un Journaliste sur la Médecine et la Chirurgie contemporaines. I. Nos Chirurgiens: MM. Péan, Ollier (de Lyon), A. Guérin, Amussat, Dolbeau, Jules Guérin, Maisonneuve, Chaisaignac, Dieulafoy. Par M. le Dr. B. J. LAPEYRÈRE. pp. 240: Paris, 1875.

The object of this little book is to circulate an admiring biography of the eminent surgeons named on its title-page, in conjunction with an equally admiring description of the special invention in surgery in connection with which each has rendered himself famous. Thus the chapters are headed—'Mons. Péan and the spread of Gastrotomy,' 'M. Ollier and Subperiosteal Resections,' etc. And, in addition to the description and praise of the principal inventions of each surgeon, a list is given of his entire publications.

The objections to a publication of this kind are obvious at first sight. They are mainly two. In the first place, the journalist bestows his patent of immortality on his friends or favourites, whilst he denies it to his enemies or to strangers; in the second place, the method of puffing an individual by indiscriminate laudation of some single invention is one which neither gives an exalted view of surgery and the surgeon, nor tends to any intelligent judgment as to the surgical methods themselves. We cannot,

therefore, recognise in Dr. Lapeyrère's work a valuable addition either to the biography or to the surgical tuition of the day; and we should greatly deprecate the extension of the plan into this country, which its author appears to hint at. We can conceive few works less likely to please the sounder judgment of the profession, to give solid instruction to the reader, to elevate the character of British surgery, or to promote the real renown of its subjects, than one composed of chapters lettered like the sandwich-men at election time—"Spencer Wells and Ovariectomy," "Lister and Disinfectants," "Thompson and his Lithotrite," "Mackenzie and his Laryngoscope," etc. The great and solid fame of the English school of surgery has always rested on its success in curing disease rather than on the ingenuity of its members in devising specialities, which are too apt to degenerate into something bearing an uncomfortable likeness to the patents of the charlatan. The tendency of this pushing, advertising, press-ridden age, is too much in that direction as it is, and works like the one before us have an influence in fostering this tendency which it is well to repress as far as our judgment can do so.

Dr. Lapeyrère seems to have seen the objections to which his scheme is open, and he thus endeavours to meet them in his preface.

'Our work, which is destined for the multitude, will preserve throughout the character of that true publicity, which consists in photographing (so to say) the ideas which we have acquired. Our only care then has been to attain exactitude along with impartiality. As regards individuals, twelve years of journalism have taught us sufficiently, that of all the means of making them known, the best is not to criticise them, with more or less of authority, but simply to relate their story.' That is, if we understand the idea rightly, the journalist is to abandon the task of the critic altogether, and confine himself to simple narration. But as this narration must, from the nature of the case, be friendly (otherwise there would be no use in introducing the man at all), the whole thing becomes a kind of puff, the more insidious because the favourable opinions with which the book is, as a matter of fact, full, would, we suppose, be characterised by the journalist, as simple accounts of what his author may be supposed to say in favour of his invention, though the reader of course takes them for the results of the author's own reflection.

Further, with reference to the topics he has chosen, Dr. Lapeyrère speaks thus.

'In this first gallery, exclusively devoted to French surgery, perhaps the absence of accredited names will be regretted.' [This certainly was our feeling in looking at the title-page.] 'Let us explain ourselves. The "Concours," by drying up the sources of originality, has created with us a peculiar situation, characterised by an equality of mediocrity' [what a singular opportunity to choose for a biographical sketch of the school], 'and the experimental method has done the rest. By its principle, which saps all tradition, it has crumbled authority, so that the great masters are gone the same way as gods and kings have gone in the present day. Bouillaud and Piörri survive. Claude Bernard has had to submit to the law of his own principle. In a word, no masters and no scholars; revolutionists in medicine; conservators in surgery. That is where we are now; so that our task is singularly simple. We have only to occupy ourselves with the improvements

or the discoveries to which particular names will remain attached' (pp. 2, 3).

We have seldom read a more lugubrious description of the decadence inseparably connected with that pseudo-liberality which renounces all reverence for the past, and by which a school is reduced from the dissemination of great principles and from the struggle after true perfection to a clique of petty specialists, each with his little invention, and each trying who shall shout out its praises loudest. Far indeed be it from us to say that the great school of France has fallen to this, and we trust to see M. Lapeyrère's judgment of his compatriots refuted by some higher authority; but if it were so, this book would be a very fitting hand-book for such a school. It is well done, with as little vulgarity and as much honesty as are compatible with its plan; the inventions it describes are well described, and much that it says about them is true. We are far indeed from charging on its author any mean or improper motive; but the work embodies a low view of the art of surgery in general, and a still lower, and we hope an altogether inadequate, estimate of the French school in particular.

We shall pass very rapidly over the details of the work. In his chapter on M. Péan, the author describes minutely and well that surgeon's operation for removing fibrous tumours of the uterus, along with portions of the uterus itself, by gastrotomy—an operation followed by recovery in fifteen cases out of twenty-one. This surgeon is said also to have performed ovariectomy 120 times with a mortality of only 25 per cent.—a real and solid advance in French operative surgery. Next comes the chapter on M. Ollier and his method of subperiosteal resection, in which we find little that is new; and the few critical observations which the author allows himself (if we are right in putting them down as his own, and not as furnished to him by M. Ollier or his scholars) are not distinguished for accuracy. Thus he says that regeneration of bone is only possible after the subperiosteal method (p. 65), ignoring altogether the fact that very considerable growth of bone constantly follows resection performed in the ordinary way, of which Mr. Syme's case, published and figured in the *Lancet* for 1855, vol. i., is a striking, though not an unusual example. Again, in quoting M. Ollier's statistics of deaths and recoveries, which are certainly less favourable than those obtained in England and America, he explains this partly by saying that English and American hospitals are more healthy (which is true enough; but there seems no reason why the admitted defects of French hospitals should not be remedied), and partly by the utterly unfounded assertion that the English and Americans hardly practise excision except in childhood (p. 69). The judgment of surgeons is still in suspense as to the practical value of M. Ollier's method; and we have no evidence here one way or the other beyond the vague assertion that patients of M. Ollier have been exhibited in whom the elbow seemed to have been reproduced and had regained all its movements. Restoration of motion after the ordinary operation is so common, and often so complete, that this vague statement is of little value.

The third chapter is devoted to M. Alph. Guérin and his method of dressing wounds with cotton-wool. In this chapter we find the lamentable fact related, that during the first siege of Paris only a single amputation was successful, and that one only a case of amputation through the malleoli. M. Guérin

thought it, therefore, a mark of signal success that in the second siege of Paris he had saved nineteen out of thirty-four 'operations' (p. 87). What the operations were is not stated; but assuming, as from the context we may, that they were amputations of all kinds for gunshot, this would not strike English military surgeons as a remarkable ratio of recoveries. However, it may be taken as a presumptive proof of the foulness of the hospital wards in Paris, and of the necessity for fresh air and cleanliness, which, we are confident, would effect a greater revolution than any surgical invention. The following chapter treats of the connection of M. Amussat, fils, with the galvanic cautery; a chapter which, we think, would have been more complete if the name of Middeldorpf had been rather more prominently mentioned, and the connection of that and other electricians with the method had been more fully discussed.

M. Dolbeau and the method of perineal lithotomy is the next subject. Here we have the description of a combination of median lithotomy with lithotripsy, which is said to have been very successful; the total number of M. Dolbeau's own operations being twenty-six with five deaths, and the whole number of operations performed on his plan fifty-five, with nine deaths. But, as no data are given of the age and general health of the patients or the size of the stones, the figures are worthless.

The next chapter is headed 'M. Jules Guérin and the Subcutaneous Method,' in which the additions which this eminent surgeon may have made to the application of the method of tenotomy are spoken of, we submit, rather too much as if he had been the discoverer or inventor of an art which, after all has been said, he only carried somewhat further than its inventor. It seems strange, even in a French work, to read a chapter on the subcutaneous method in which Stromeyer is not even mentioned, and from which a reader new to the subject would infallibly conclude that tenotomy was devised by M. Jules Guérin. M. Maisonneuve's plan of urethrotomy is next described, which consists in introducing through the stricture (if one can) a perfectly flexible filiform bougie, at the top of which is a head containing a screw. When the bougie is passed into the bladder, a director, or grooved staff, is screwed on to the head of the bougie, and the latter is pushed on before the staff, to which it therefore serves as guide. As the filiform bougie passes on, it rolls itself up in the bladder. When the surgeon has got his grooved-staff in position, he pushes down its groove a half-sharp lancet-headed knife, which will cut or rupture the stricture, but is not large enough to injure the normal urethra. Every degree of praise is lavished on this proceeding, while the objections which have prevented its coming into use are, of course, unnoticed, viz., that in cases where urethrotomy might really be required, *i.e.*, in very dense, extensive, impassable strictures, or in formidable strictures, complicated with false passages, the surgeon generally finds himself foiled in the attempt to pass his filiform bougie, whilst the cases in which he can pass it can generally be cured without any such dangerous operation. We need only mention that the same surgeon's caustic arrows, M. Chassaingnac's écraseur and drainage-tubes, and M. Dieulafoy's aspirator form the other subjects, all useful and meritorious inventions, yet hardly, one would think, sufficient to give a title to their inventors to appear as the heads of a great school. Yet the introduction of the aspirator is the only

performance which seems to have raised M. Dieulafoy into the rank of 'Nos Chirurgiens' at the age of thirty-five.

We need only add that a biographical sketch of each surgeon is added, in a style corresponding to that of the rest of the articles. T. HOLMES.

A Manual of Diet in Health and Disease. By T. KING CHAMBERS, M.D., F.R.C.P. Pp. 352. Smith, Elder & Co., 1875.

In compiling this small but comprehensive manual, Dr. Chambers has laid the profession under a debt of gratitude to him. He writes on the subject like one who has given his mind to it, and therefore is entitled to speak with authority. It is not quite up to the present position of physiology, and in some points should be improved in a future edition; but if it has some defects here, they are amply compensated for by the wide range of personal knowledge on the matter testified to in every chapter. The author has travelled far and made careful observations during his wanderings, especially on the subject here treated. His account of various foods, their value, and the best means of selecting them, is brief but comprehensive. Then he gives an account of the preparation of foods, which reveals his personal interest in the subject of which he writes. There is ripeness in his information, which impresses the reader as he goes on. He advocates the free use of fruit by adults as well as children, but does not approve of their being eaten only at dessert. When speaking of rice, he is in favour of its more widespread use, except in exhaustion and rapid cooling after severe exercise. The second part is devoted to the special dietetics of health; and Dr. Chambers has much to say to the point about the requirements of different ages, of commercial and literary life, and of travel. In these chapters there is much that may be read with advantage, both by professional and by lay readers. The remarks as to the diet to be adopted by travellers are judicious, and specially appropriate. There are many valuable hints given about other matters than food which are well worth remembering. In part third, we find the dietetics of sickness detailed at some length. In this section there is much that is valuable, and it is a step in the right direction, but still there is something left to be desired. We must not be too exacting about efforts which are new, and as a pioneer Dr. Chambers deserves much credit; he has opened up a new field of which others will no doubt avail themselves. Nevertheless, many of the chapters are too meagre, and might have been dealt with at greater length, as, no doubt, they will be in a future edition. As a rule the remarks are sound and well chosen, but there are exceptions, as, for instance in advising the loss of albumen in albuminuria to be met by a diet rich in albumen—advice of questionable utility when we remember the destination of most of the albumen consumed. Taken altogether, this work is one which gives, in an agreeable form, much valuable information on a most important subject, and ought to have a large sale both in the profession and out of it.

AN ANACHRONISM.—The monastery of Altenburg, in Lower Austria, advertises for a resident medical attendant. He is not only to treat those inmates who are ill, but to shave the beards and cut the hair of the holy brethren. For these duties he is to receive free board and residence and 200 florins (20*l.*) yearly.

MISCELLANY.

THE new Anatomical Institute at Leipzig was opened on April 27.

DR. G. L. CARIUS, professor of chemistry at Marburg, died on April 26, in the forty-sixth year of his age.

THE Cross of Commander of the Norwegian Order of St. Olaf has been conferred on Professor Sigmund of Vienna.

AMONGST the works of art in the Paris Salon are portraits of Dr. Noël Gueneau de Mussy, painted by M. Benjamin Constant, and of Dr. Oulmont, by M. Blanchard.

MORGAGNI.—A colossal statue of the celebrated Giovanni Battista Morgagni, by Salvini, has been placed in a public place at Forlì, and is to be publicly unveiled during the present month.

CARLSBAD.—A recent list of the visitors of Carlsbad gives some statistics of that celebrated watering-place from 1765 to 1874. In 1765 there were 247 visitors, and the number increased yearly until 1778, the year of the Bavarian war of succession, when it fell to 59. The place was also unfavourably affected in other years of war. In 1809 the number of visitors fell to 155, and in 1812 and 1813 to 782 and 629. In 1848 the number fell from 3,435 in 1847 to 1,718; and during the Italian war in 1859 to 4,545, the number in 1858 having been 5,776. In 1866 the number of visitors fell from 7,969 in the previous year to 3,009, and in 1874 it was as high as 14,616.

ANOTHER VICTIM TO DUTY.—The *Indipendente* of May 5 records the death of Dr. Carlo Ferreri, a young physician of Turin, at the early age of twenty-seven. In February last, an epidemic of typhus fever broke out at Torre-Pellice, and Dr. Ferreri was sent to the place to afford professional aid—two physicians, Drs. Malan and Laura, having already fallen victims. Mainly through the intelligent and assiduous labours of Dr. Ferreri, the disease was stamped out in two months, and he returned to Turin on April 15. Shortly after his return, he was seized with the disease against which he had combated, and died on April 30.

CRIME AND AUTOMATISM.—Dr. Despine, in his *Psychologie Naturelle*, gives a striking analysis of the mental status of the criminal classes. Attracted by the singular want of emotion displayed by most criminals, Dr. Despine was led to a thorough examination of court-records and other sources of information. He arrives at a belief in the entire absence of moral sense in this class. He says that free-will, which in the normal man is only controlled by the sense of duty, in the criminal has no such counter-balance, this sense being wanting. His acts are therefore mentally automatic, the result of the strongest instinct, appetite, or passion prevailing at the time. Most criminals are therefore morally irresponsible, no matter how great the crime as against society. Like brutes, savages, and idiots, they yield to natural appetites and passions, unrestrained and unapproached by any feeling of impropriety, although intellectually cognisant of the moral standards of society. Hence their remarkable *sang froid*, and the superficial character of any apparent reformation or conversion. Dr. Thomson, resident surgeon to the General Prison for Scotland, at Perth, finds his experience confirmatory of the views of Despine, and, in a paper published in the *Journal of Mental Science* for October, 1870, recognises various degrees of 'moral insensibility.'

MEDICAL INSTRUCTION IN COPENHAGEN.—The following are the courses of instructions given during the spring term this year in the Faculty of Medicine in Copenhagen. Professor M. H. Saxtorph, surgical clinical lectures and exercises, one hour daily. Professor P. L. Panum, lectures on the functions of vegetative life, and on

the nutrition, growth and repair of the tissues and organs, four hours weekly; colloquial examinations on the subjects of the lectures, one hour; for senior students, repetitive examinations on selected subjects from the whole range of physiology, two hours; practical course of medical chemistry, twice a week, three hours each time. Professor C. E. With, medical clinical lectures, five hours weekly; practical, clinical medicine, one hour daily for three months; lectures and demonstrations on internal diseases, one hour weekly. Professor F. Th. Schmidt lectures on the muscular and vascular systems five hours weekly; examination on topographical anatomy, once weekly, for an hour and a half; elementary exercises in microscopical anatomy, once weekly, for two hours; dissections. Professor C. M. Reisz lectures on acute infectious diseases two hours weekly; examination (from Niemeyer's Therapeutics) on individual chapters of diseases of the air-passages and of the organs of circulation (after an introductory lecture on the examination of the thoracic organs) two hours weekly; practical clinical medicine, one hour daily for three months. Professor A. Stadtfeldt lectures on the physiology and pathology of labour, two hours weekly; clinical exercises and demonstrations in midwifery and in the diseases of women and children, for senior students, three hours weekly; exercises in the examination of pregnant women, one hour weekly. Professor T. S. Warncke lectures on pharmacology, two hours weekly; exercises in writing prescriptions, two hours weekly. Professor Gædeken lectures on forensic medicine, two hours weekly; written exercises and examinations, two hours; clinical lectures on mental diseases, one hour weekly. Lector P. Plum exercises on practical surgery, four hours weekly; examinations on the surgical diseases of the female urinary and genital organs, two hours. Lector C. Lange (in the absence of Dr. Rasmussen through illness), demonstrations in pathological anatomy, three hours a week; *post mortem* examinations, three hours. Provisional teacher, S. Engelsted, gives clinical lectures on diseases of the skin and venereal diseases, one hour weekly; and exercises in the diagnosis and treatment of these diseases, two hours weekly. Drs. A. Brünniche, F. Trier, and L. J. Brandes, give practical clinical instruction on internal diseases; and private teacher, E. Hansen, gives practical clinical instruction on diseases of the eye once weekly, for two hours.

ERRATUM.

The second paragraph of the article on Auditory Vertigo (p. 287) of last number, should be in quotation marks, as it was taken from Dr. Brown-Séquard's lectures.

NOTICE.

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The London Medical Record.

WEDNESDAY, MAY 26, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

THIERSCH ON LISTER'S ANTISEPTIC METHOD, AND ON THE SUBSTITUTION OF SALICYLIC FOR CARBOLIC ACID.

The following abstract of a paper published by Professor Thiersch, of Leipzig, in nos. 84 and 85 of Volkmann's *Sammlung Klinischer Vorträge*, is taken from the *Allgemeine Medicinische Central-Zeitung*, nos. 31, 32, 33, and 34, 1875.

That the atmosphere surrounding patients plays an influential part in the treatment of wounds, is a conviction which has long been entertained, even before any proof was afforded of the presence of minute fermentative particles in the air. Lister regards the action of these ferments on a wound as the cause of accidental traumatic diseases, and the object of his treatment is to eliminate this influence from the course of healing of the wound, so that an aseptic course may be ensured and all danger arising from zymosis warded off.

In former times, the traumatic inflammation, so far as it could be regarded as a mechanical result of the injury, was made the central point of treatment, and endeavours were made to reduce it by anti-inflammatory measures. Now, however, the chief importance is attached to septic processes; all dangerous increases of the traumatic inflammation are attributed to them, and antiphlogistic measures are looked on as without effect against these processes. Minute vegetable organisms, bacteria, belonging to the atmospheric dust, are specially regarded as producers of putrefaction and as disease-poisons.

Unfortunately there are still many unsolved questions in connection with this subject; and the opinions of special observers are too often contradictory. In any case it is established, that the atmospheric ferments exert a special influence on putrefiable fluids, to which belong the fluids of wounds; and that these fluids, among which the author reckons the discharges from the parenchyma of the wounded part, act in various ways on the organism according to their composition. All beyond this is matter of conjecture.

Dr. Thiersch agrees with those who believe that the conditions for septicæmia, hospital gangrene, and pyæmia are afforded by the operation of the atmospheric ferments; he supposes that poisonous materials are set free by chemical decomposition under the influence of the ferments, but that the ferments themselves are not poisonous. He regards Lister's method of treating wounds, which he has until very recently used with much benefit, as an experiment correctly based on the preceding supposition.

In March, 1874, Professor Kolbe placed at his disposal for therapeutic experiments a considerable

quantity of salicylic acid, which he had prepared by a cheap process.

This acid dissolves at the ordinary temperature of a room, in the proportion of about one part in 300 of distilled water; and this solution, which the author calls salicylic water, possesses distinct antiseptic properties. Urine, to which salicylic acid has been added in this or in greater proportion, does not pass into decomposition, although exposed to the air. A specimen which had been kept in this way nine months still contained urea and showed no turbidity. A similar effect is produced in blood and pus. On the addition of salicylic acid, blood assumes a dirty violet colour, probably dependent on the iron which it contains. Salicylic water throws down from pus-serum a greater quantity of albuminates than a one per cent. solution of carbolic acid in water does. Recent and granulating wounds do not suffer any inflammatory irritation on being irrigated with salicylic water; and if, after the solution has remained long in contact, a white layer of coagulated matter be formed by precipitation from the pus-serum, the granulation-tissue remains unaffected beneath it. After irrigation of the wound for some time, salicylic acid can be found in the urine; and in many cases its presence in this excretion is shown by an olive-green colouring. No poisonous effects were observed during the passage of salicylic acid through the body, after its administration in doses of half a gramme (seven and a half grains) or more daily. The colourless blood-corpuscles and pus-corpuscles retain their form, probably from gradual hardening of their protoplasm; while in the red corpuscles the colouring matter is aggregated in the peripheral layer, giving them the appearance, when the circumference is brought into form, of a yellow ring with a clear centre. The molecular movement of the protoplasm-granules of fresh pus-corpuscles and colourless blood-corpuscles continues some time, in spite of the presence of salicylic acid.

The action is otherwise when we have to deal with a wound which is already charged with the products of ichorous or gangrenous decomposition. When the surface of the wound is carefully cleaned and sprinkled with salicylic acid in substance, the effect is to prevent a return of the foul odour; but if the ichorous or sloughing process have reached a certain extent, being $\frac{1}{8}$ to $\frac{1}{2}$ inch in thickness, as in suppurating cancer, and in frost-bite and senile gangrene, the action of the remedy does not extend deeply enough, and the smell soon returns. Under some circumstances the application produces burning pains, which last from a quarter to half an hour.

It being established that a solution of salicylic acid (1 in 300) prevents the putrefaction of blood and of exudations from wounds, that this solution exerts no detrimental irritation on fresh and granulating wounds, and that evil consequences from the passage of the acid into the circulation are not to be feared, Dr. Thiersch used salicylic acid methodically in cases of recent wounds.

As, in Lister's method, the access of atmospheric ferments to the wound during operation is said to be rendered harmless by the use of carbolic acid, it was expected that a similar result would follow the use of salicylic acid; and at the same time that the continued retention of a sufficient quantity of the antiseptic in contact with the discharges would act on the products of decomposition that were independent of atmospheric ferments, by arresting

their formation or changing them. This occurred under the use of salicylic water and cotton-wadding impregnated with salicylic acid, which Thiersch calls salicylic cotton. Of the latter, some was prepared with a three per cent., and some with a ten per cent. solution; the latter being coloured with carmine to distinguish it. The salts of salicylic acid were found to possess but slight antiseptic power. As salicylic acid is not volatile at the ordinary temperature, like carbolic acid, it appeared at first doubtful whether it was capable of rendering atmospheric ferments harmless when used in the form of spray; it has been found, however, that the moisture deposited from the spray on the wound fulfils the antiseptic object, so that the salicylic spray may be used with as much security as the carbolic. The salicylic acid spray is without smell; but it produces sneezing and coughing; the same effect is produced by the fine dust set free in handling salicylic cotton. Cotton which does not produce this effect does not contain a sufficient quantity of free salicylic acid. This acid also, like carbolic acid, makes the surgeon's hands rough.

In order to accumulate a sufficient store of the antiseptic in the vicinity of the wound without changing the dressings, two ways were possible. Either dressings of cotton-wadding thickly strewn with salicylic acid could be applied, and covered with a fresh layer of salicylic cotton as soon as blood and exudations appeared on the surface of the dressing; or the cotton might be charged anew with salicylic acid by irrigation with salicylic water. As it was to be expected that, if the dry dressing were used, the layers of cotton nearest the wound would become impervious to the exudation through the stopping up of the interspaces, and thus the object of the antiseptic would not be attained, Dr. Thiersch began his experiments with the moist plan. In the course of his observations, he ascertained for what cases the dry dressing and the irrigation were respectively fitted; and to these is added as a third variety the open treatment of wounds by irrigation with salicylic water, in the same way as is done with carbolic acid in Bardeleben's practice in the Charité hospital.

All the operations were performed by Dr. Thiersch, whenever possible, according to Esmarch's method, after previous careful disinfection of the part to be operated on, under the protection of antiseptic spray, and with disinfected hands and instruments. Especial importance was attached to arresting arterial bleeding as much as possible before applying the dressings; and for this purpose Lister's carbolic catgut was exclusively employed.

Of the twenty-two cases reported, four were amputation of the thigh, with fatal results; and in two cases of amputation of the forearm, three of amputation of the leg, four of the hand and six of the arm, the course was not remarkable; three successful cases of amputation of the thigh and leg occurred in children. Dr. Thiersch has arrived at the conclusion, from a consideration of the unsuccessful cases, that, although salicylic acid may not prevent all decomposition, and although offensively smelling products of decomposition may be formed, it prevents that form of decomposition which leads to pyæmia. In four cases at least, the special conditions for the production of pyæmia appeared to be present.

In order to give a clear exposition of the practical value of antiseptic treatment, Dr. Thiersch has

summarised the 160 cases treated antiseptically in the Leipzig Hospital during the last ten months, commencing with April, 1874, when he made his first experiments with salicylic acid. Much of the success which he met with is, however, to be attributed to the newness and remarkably good arrangement of the new Jacob's Hospital in which the author obtained his results. The hospital, which lies in a high open position at the north of the town, extends over a large area. It is divided into two parts, one of which consists of barracks. There are 348 beds, eighty of which in the hospital and nine in the barracks are for surgical uses. The hospital is easily ventilated; in winter, warm pure air is introduced and the impure air is pumped out; each department has a supply of hot and cold water. All the excreted matters are disinfected by Süvern's method. Infected linen and bed-clothes are removed from the wards and not brought back until they have been thoroughly purified; and great attention is paid to cleanliness. The nursing is managed by the Dresden deaconesses; the institution possesses a very good dispensary, and most liberal provision is made by the town authorities for the expenses of treatment of the patients.

(To be continued.)

A CASE OF CONIUM-POISONING.

The *New York Times*, of April 13, gives a long report of the scientific evidence tendered, and of the verdict returned, in a singular case of poisoning by conium, of which Dr. Walker was the victim. According to the evidence previously given by those around Dr. Walker when he died, he had minutely observed every sensation and dictated them to his wife, who took them down in writing. He died quite suddenly, speaking and making muscular movements almost to the instant before expiration. In consequence of the singular circumstances of the case, the inquest and verdict attracted much attention.

Dr. J. C. Shaw was the first witness called. He gave an account of the *post mortem* examination. In the brain, which weighed fifty-seven ounces, there was much venous congestion. The arachnoid and pia mater were thickened and vascular, but readily removed from the brain-substance. The crura cerebri were slightly softened. The cerebral arteries were much degenerated; the vertebral, of unequal size, the basilar, the posterior and middle cerebral arteries, all bore marked evidences of calcareous degeneration. 'A small foreign growth was found on the pia mater, just in the fork, at the commencement of the crura cerebri.' The lungs were very much congested; not mere hypostatic congestion. The heart weighed nineteen ounces; the valves were perfect; its structure was healthy. The coronary arteries were normal, and the aorta contained only one point of atheroma. The abdominal viscera were sound; there was much fat.

Dr. Agnew stated that the extract of conium, prescribed by himself and Dr. Webster, was of ordinary strength. As it was ineffectual in giving relief, they advised Dr. Walker to procure some of Dr. Squibb's extract, which he did.

Dr. Squibb gave his evidence from a careful written statement. He stated that he had given up ordinary practice for the preparation of medicinal agents. [For which Dr. Squibb has a high and

widely spread reputation.—*Rep.*] The deceased came to him on April 3, sent by Drs. S. Agnew and Webster, with a written prescription. Their conium had failed to affect the deceased or to relieve his facial spasms. He had taken 180 drops without effect. He then gave him a fluid extract of conium-seed, directing him to take it in fifty-minim doses, at intervals of half an hour, and told him that the effect to be watched for was a kind of intoxication, which was usually accompanied by dizziness, with muscular weakness and relaxation. In four hours the patient died, having taken three fifty-minim doses. He agreed with Drs. Agnew and Webster as to the propriety of giving conium in the deceased's complaint. The most careful instructions were given to the deceased; and the medicine, though potent, was not prescribed in either a deadly or a dangerous dose. The dose he took was not a large one; and the cases on record, where conium has been most successful in overcoming muscular spasm, have, on the average, been treated by doses much larger. In the cases published by Dr. John Harley, of London, one of the highest and best authorities on the use of conium, the average dose exceeded by one half that taken by Dr. Walker; while many of the doses, though not considered exceptionally large or at all dangerous, exceeded the whole quantity taken by the deceased in his three doses. These circumstances made it doubtful if the deceased had died from conium alone. The preparation was made according to the United States *Pharmacopœia*, and was no better or stronger than it ought to be made; it was only carefully prepared. There was no secrecy nor great difficulty about the preparation. Measure-glasses were not always absolutely accurate.

Mr. Charles L. Walker, son of the deceased, deposed: 'On Saturday evening I came home, about twenty-five minutes to seven; mother called me and said father had been taking his medicine, and she wanted me to come upstairs. I went into the room: father was sitting on the edge of the bed leaning against my mother. He recognised me, and I sat down, and he pressed my hand: I fanned him, and he seemed relieved; I sent for coffee, but he said, "by-and-by," pointing to his throat; he called for electricity by the Faradaic system; he tried to apply it, but he fell back heavily. Dr. Gilfillan was summoned, and on his arrival said my father had been dead some little time. When he fell back it was about a quarter to seven; his mind appeared clear.' This testimony was corroborated by John H. Walker, another son of the deceased.

The Coroner then charged the jury, saying, 'There are three questions you have to answer: How, when, and where the deceased came by his death.' He read to them, at length, the description of the action of hemlock from Dr. John Harley's book. The jury returned the following verdict: 'The deceased came by his death by the medical use of the fluid extract of conium. He first took 180 drops of the extract of the leaves, in divided doses, in two hours, and then after an interval of four hours 150 minims of the extract of conium seed, in fifty-minim doses every half-hour, and suddenly died in about one hour and a half after taking the third dose. Moreover, we find that, from some inappreciable cause to us, the medicine acted with unwonted potency.'

Dr. John Harley comments on this case as follows. 'Having used Dr. Squibb's fluid extract of

conium, received direct from him, and ascertained its medicinal value as compared with other preparations of hemlock (See *Practitioner*, Dec. 1870, p. 332), I fully concur in Dr. Squibb's statement that 150 minims is not a deadly or even a dangerous dose to a person in a fair state of health, such as Mr. F. W. Walker was assumed to be in. In a healthy individual, the quantity would have caused only a moderate degree of coniumism, and such as would be appropriate to the treatment of the inveterate form of spasm of the facial muscles with which the patient was afflicted. The evidence, indeed, shows that the specific action of the drug was not excessive in Mr. Walker's case. He was not, in fact, under the complete influence of the drug at the time of his death; for, if he had been, he would have been incapable of the acts evidenced by his sons during the last five minutes of his life. His son states that he "recognised" him, "pressed" his hand, "pointed" to his throat, called for electricity, and was able to articulate the difficult word "faradaic" clearly enough to be understood. And it is further stated, in the evidence of his sons, that he tried to apply the current a few moments before he fell back dead. A person under the mortal influence of hemlock would be incapable of speech and motion. Further, this condition of complete palsy of the voluntary acts would precede death by a considerable interval.

'Nevertheless, the finding of the jury is in strict accordance with the evidence; and it is discriminative, as well as just. But the "inappreciable cause from which the medicine acted with extraordinary potency" is sufficiently obvious to the pathologist. Mr. Walker's wife regarded him as in good health; but the *post mortem* examination revealed the fact that he had nearly come to the end of his days, and that very little was needed to precipitate him into the grave. Apart from the extensive degeneration of the great arteries of the brain, and the softened condition of the crura cerebri, which must have weakened and retarded the motor impulses conveyed by them—apart from these factors of apoplexy, there was grave mischief in the chest. The lungs were exceedingly soft, so much so as to tear in places during their removal; and here is an explanation of the abnormal susceptibility to the action of hemlock. The greatly enlarged heart (at least one-third heavier than it should have been in a man of the patient's age) speaks of feebleness of the pulmonary circulation, and no doubt the blood-vessels of the lungs were, to say the least of it, as extensively degenerated as were those of the brain. With such a predisposition to pulmonary congestion, a little exciting cause was sufficient to determine the event. The hemlock undoubtedly contributed to this, because, by depressing what must have been previously a feeble respiratory function, it would cause increased cardiac pressure, and thus give a tendency to syncope, of which the patient died. But there were other influences at work besides the hemlock, and these, I glean from the evidence, were scanty food and nervous prostration. It appears that he took no refreshment for nine hours, purposely refraining from food in order to promote the action of the medicine. His nervous system had been on the strain of expectancy of subjective symptoms for as many hours, and this would be a powerful adjunct to the other two depressing influences. The impulsive and apparently reckless character of the man must also be taken into account, as well as the deterioration of the organic functions.'

[With a heart weighing nineteen ounces, twice the weight of a normal heart, without valvular disease, there is a very strong probability of chronic renal disease, though there was no special allusion to the kidneys at the inquest.—*Rep.*]

J. MILNER FOTHERGILL, M.D.

EULENBURG ON HEMIPLEGIA FROM LIGHTNING.

There is an original paper on this subject by Professor Eulenburg of Greifswald, in no. 17 of the *Berliner Klinische Wochenschrift* [April 26, 1875], in which he remarks on the small number of published cases of partial paralyses through lightning-stroke, and the scanty details we possess as to their nature and seat. This is especially the case as regards hemiplegia. Dr. G. R. Barnes ('The Deaths from Lightning at Ewell,' *Medical Times and Gazette*, June 20, 1868, p. 671), narrates the death by lightning, of a man on horseback, at whose necropsy a blood-clot was found in the left cerebral hemisphere; but it is not certain whether the hæmorrhage was due to the lightning or to the fall from his horse. Bugge (*Deutsche Klinik*, June 20, 1874), speaks of 'a nerve-affection as the consequence of being struck by lightning' in a delicate girl, who was so struck in a room. At first there were only headache, dilatation of pupils, dyspnœa, and palpitation; after twelve days a systolic and diastolic murmur in the cardiac region; after six days more paralysis on the right side; and death on the thirty-third day. There was no *post mortem* examination. Bugge maintains that there was first a neuro-paralytic (?) endocarditis, followed by cerebral embolism. In any case, the lightning was not the proximal cause of the hemiplegia. It thus contrasts with the case Eulenburg now puts on record.

Carl Z., aged forty-two, was on duty as a pointsman on the Berlin-Stettin railway, near Stralsund. On the night of August 4 to 5, 1873, he went along the rails during a heavy storm, in order to wind up the clock used in the signal department. He had scarcely inserted the key with his left hand (always used by him in his work), and made the first turn in the winding, when a flash of lightning flew along the telegraph wire into the clock, thence to the key, and thence into the left half of his body. He immediately lost consciousness, and lay so for about an hour, till restored to consciousness by the heavy rain which followed, soaking in, and dropping on his face. He tried to get up, but found that he was perfectly paralysed on the left side. With great difficulty he dragged himself to the room allotted him, where he spent the time till relieved. Next morning a local surgeon verified a total loss of motor power in the left arm and leg, with considerable loss of sensation; pricks of pins were not accurately localised, and sense of weight was almost lost in the leg, whilst heat and cold were felt pretty much as in health. Headache, insomnia, giddiness, slight muscular tremors, constipation, and retention of urine were felt for a few days, and then gradually vanished. But the patient complained for some time of dyspnœa, of a 'weight on the chest,' and of a slight degree of tenesmus of the bladder. After some time, and local faradisation, the leg gained some power, but the arm remained as before. Ten months after the accident (end of May, 1874), the patient came under Dr. Eulenburg's care. Slight want of

symmetry of the features was evident; the left side of the face was a little flattened; the left ala of the nose moved less in respiration than the right; the left angle of the mouth was slightly drawn towards the paralysed side, and was almost immovable when he laughed. There was at times slight tremor of the eyelids. All his special senses were perfect; and, except that he complained of great loss of memory, the sensorium appeared free from any disorder. The paresis of his left arm was almost complete; it hung down quite limp, and all movement seemed abolished, except that he could do a little in the way of moving his fingers, especially in flexing them; and he could partially abduct and oppose the thumb. There was no hindrance to passive movements, the joints being movable. Sensation (tested in various ways) and electro-muscular sensibility were almost the same as on the sound side. The skin was generally pale, but on the back of the hand darker, and almost cyanotic; the temperature of this hand was a trifle lower than on the sound side. There was not much apparent wasting, or difference in measurements. There may, however, have been more than was visible; since, as he was left-handed, the left arm was no doubt originally the larger. The left leg, though still weak, could be moved in various ways. The muscular sense was little affected; but cutaneous sensibility, tested in different modes, was decidedly defective in the foot. Sensibility to pressure was slightly so. The skin was more mottled, darker, colder, drier, and less supple than that of the healthy leg. The epidermis was thrown off more rapidly. The growth of the nails was not affected. The thigh and calf-muscles were rather flabby, and slightly smaller than those of the right side [measurements gave four-tenths and eight-tenths of an inch decrease]. The left half of the thorax did not move so well as the right in inspiration. The left pectoralis major was somewhat smaller than the right. The nerves in both upper and lower extremities showed entirely normal reactions, with faradisation. The excitability of the muscles, in accordance with the slight loss of bulk, was a little diminished. The galvanic irritability of the nerve-trunks was perfectly normal [first cathode closing-contraction, then anode opening-contraction, and anode closing-contraction]. There was one exception. On irritating the left bronchial plexus in the neck, in the supraclavicular fossa, when the different electrodes were applied to the plexus, one electrode being on the sternum, it was found that contraction of the left arm followed first, on removal of the cathode, then with opening and closing of the anode, and only much more slowly with closing of the cathode [on the left side this latter required thirty-five to forty cells; whilst ten to fifteen cells were sufficient on the right side]. Galvano-muscular contractility seemed almost unaffected. During June and July, peripheral faradisation and galvanisation were used alternately to the brachial plexus, peripheral nerve-trunks, and paralysed muscles of the arm; this was then interrupted for some months, resumed again in November, and continued till December 15, with continuous improvement. He can now raise, flex, and extend the whole arm; but it is still comparatively weak, and rotatory movements of the arm, with pronation and supination of forearm, are still imperfect, as is the action of the pectoralis major. There is no more anomaly of the nervous irritability. All differences in sensation, temperature, and

nutrition of the paralysed side have vanished almost entirely. In commenting on this case, Professor Eulenburg remarks that there must almost certainly have been a central cerebral lesion—apparently of hæmorrhagic character. The hemiplegic type, slow recovery, beginning in the leg, slight disturbance of nutrition, and almost absolute integrity of the faradic and galvanic reactions, all point to this. The slight amount of facial mischief points to the right cerebral hemisphere [nucleus lentiformis, corpus striatum]. Probably the optic thalamus and adjacent parts suffered slightly, at least in their blood-supply. Admitting, however, the patient's statement (and there seems no reason to doubt it), why was the right side of the brain affected, whilst the current must have traversed, first the key, then the left arm, etc? There seems no satisfactory explanation. The peculiar and anomalous alteration of the galvanic reaction of the brachial plexus noted above, which was repeatedly observed for a considerable time, seems also very difficult to explain by the light of recorded facts. [Reference is made to Erb's *Entartungs-Reaction*, and to Burckhardt *Die physiologische Diagnostik der Nervenkrankheiten*, Leipzig, 1875.] We can only say with Burckhardt, 'that it appears that certain cerebral processes are able to modify and disturb all the normal conditions of nutrition, and thus to alter the reactions of remote [nerve] regions. [This case is so interesting in itself, and has been so carefully studied in all its aspects by Professor Eulenburg, that the Reporter feels but little apology to be necessary for the length of the present abstract.]

W. BATHURST WOODMAN, M.D.

ANATOMY AND PHYSIOLOGY.

DALTON AND OTHERS ON MOTOR CENTRES IN THE CEREBRAL CONVOLUTIONS.—The *New York Medical Journal* for March contains the report of a committee of the New York Society of Neurology and Electrology, consisting of Drs. J. C. Dalton, J. W. S. Arnold, Geo. M. Beard, A. Flint, Jr., and John M. Mason, on the above subject.

'There is no doubt that there are certain limited spots upon the surface of the cerebral convolutions which, when subjected, in the etherised animal, to a weak galvanic current, will cause distinct momentary contraction of separate muscles, or groups of muscles, on the opposite side of the body.

'The same galvanic stimulus, applied to other points, not more than five millimètres distant, will be entirely without effect; and, when reapplied to the former spot, will again produce the same contractions as before.

'The number of the repetitions of particular contractions following galvanisation of particular points leaves no question as to the reality of the connection between them.

'In repeated instances, corresponding points upon the right and left sides of the brain act experimentally as centres of motion for similar groups of muscles on the left and right sides of the body. We cannot say that in all cases this bilateral correspondence of the cerebral centres of motion is complete; although it may be so in reality, since the two sides of the brain in the dog are never exactly symmetrical, as regards either the fissures or the convolutions.

'The action of the cerebral convolutions in pro-

ducing muscular contraction, when this contraction is definite and limited, is always a crossed action; galvanisation of the convolutions on either side of the brain exciting movement in the muscles, both of the limbs and face, on the opposite side of the body.

'Galvanisation of the dura mater, or other sensitive parts, produces, on the contrary, by reflex action, muscular twitchings on the same side of the body.

'This is especially illustrated in an experiment, where, the dura mater being exposed but unopened, application of the electrodes to its exterior surface produced, twenty-four times, muscular twitchings on the corresponding sides only, namely, ten times on the left, and fourteen times on the right.

'But, after the dura mater had been removed, application of the electrodes to the surface of the convolutions, in the same experiment, produced, thirty-two times, distinct muscular contraction on the opposite side of the body alone; while once only it was followed by a slight contraction on the same side.

'In the same experiment, application of the electrodes to a small part of the dura mater left at a corner of the wound produced a distinct depression of the shoulder on the same side, while their application to the cerebral surface immediately adjacent was without effect; this result being obtained invariably in twenty applications, made alternately to the dura mater and to the brain.

'If we compare the total results of all the experiments, the preponderance of crossed action in galvanisation of the brain becomes very manifest. Fifteen different points of the cerebral surface, when galvanised, excited distinct movement on the opposite side of the body one hundred and sixty-nine times; two points excited slight movements on the same side with themselves four times only.

'Among these instances is not counted that of a special point, which usually excited a flexion of the head and neck in the median line; both sets of the muscles, right and left, being either called into action harmoniously, or else each one having the power to flex the head without deviating it toward the opposite side.

'All the centres of motion for the anterior and posterior limbs are situated in the convolution immediately surrounding the frontal fissure. This fissure, which is well-marked in the dog and other carnivorous animals, is a nearly transverse furrow running outward from the great longitudinal fissure, and situated at about the junction of the middle and anterior thirds of the brain, as viewed from above. The centres for flexion and extension of the anterior and posterior limbs the committee have always found in the external part of the præfrontal convolution, just anterior to this fissure, and in the post-frontal convolution just behind it. In a majority of cases those for the anterior limbs were situated more in front, near the outer extremity of the frontal fissure, and those for the posterior limbs more posteriorly and inward, but their exact position varied somewhat in different cases. The centre for flexion of the head and neck in the median line is in the lateral and anterior part of the præfrontal convolution, where it bends downward and outward; that for flexion of the head with rotation toward the side of the stimulus is in a part of the convolution situated still further toward the front and downward, so as to be invisible in a view of the brain taken from above. The centre

for the facial muscles is in a region situated on the lateral part of the hemisphere, immediately about the supra-Sylvian fissure.

These localities, as found by the committee, correspond in nearly all essential particulars with those given by Hitzig, and in some instances their identity was complete. This fact is of much value as testifying to the genuineness of the results in both cases—since the spots experimentally found to be centres of motion were all marked, as above stated, by the insertion of needles before killing the animal; but their location upon the hemispheres, and consequently their correspondence with those discovered by Hitzig, could never be seen until after the brain had been removed from the cranium.

With regard to the separate points for flexion and extension of the anterior and posterior limbs respectively, the committee are unable to fix these points more precisely from the results of their experiments. In some cases they varied in position more or less in different animals; and in some a single application of the electrodes would produce movement in more than one set of muscles. It is not possible, therefore, for the committee to indicate an exact or invariable locality for the centres of motion, by reference to the fissures or convolutions; but they are led to the conclusion that these centres exist, and that, when the galvanisation happens to be applied only to the spot which they occupy, they will produce movements peculiar to themselves.

Thus, in the experiments detailed above, sixty-four applications of the electrodes produced flexion in one limb only, and fourteen applications produced extension in one limb only; making seventy-eight isolated movements. In twelve cases there was flexion or extension of both limbs simultaneously, and in eleven cases flexion of one limb, accompanied by extension of the other, making in all twenty-three double movements of the limbs. That is, more than three-quarters of all these movements were isolated movements of flexion or extension of a single limb.

It is evident that a variety of circumstances influence the results of galvanising the cerebral convolutions. On several occasions the contractions produced in an opposite limb seemed to increase in intensity with the repetition of the stimulus at short intervals. A deeply etherised condition of the animal, on the other hand, will sometimes suspend altogether the phenomena of movement, which were well marked a short time before; and these phenomena may reappear after an interval of repose.

A weak galvanic current from eight cells, applied to a particular spot, may cause distinct movement in one of the opposite limbs only, while a stronger current from sixteen cells, applied to the same spot, may produce a confused motion in all the limbs at once.

RECENT PAPERS.

The Movements and Innervation of the Iris. By Dr. H. Gradle. (*Chicago Journal of Nervous and Mental Disease*, May, 1875.)

The General Physiology of the Movements of the Body. By Dr. J. W. S. Arnold. (*New York Medical Record*, April 24.)

The Relations of the Nervous System to the Uterus. By Dr. Jewell. (*Chicago Journal of Nervous and Mental Disease*, April, 1875.)

PATHOLOGY.

BOURNEVILLE ON CERVICAL PACHYMEINGITIS.—Dr. Bourneville (*Le Progrès Médical*, Nov. 7, 1874) reports as follows, from the clinique of M. Charcot, with reference to one form of muscular atrophy of spinal origin. Hypertrophic cervical pachymeningitis, M. Charcot states, has occupied his attention for many years past, and has lately formed the subject of a monograph by one of his pupils, M. Joffroy.

It forms, observes M. Charcot, a type sufficiently distinct, its symptomatology being precise enough to facilitate its diagnosis. It is not necessarily incurable, as is shown by a case under observation.

Pachymeningitis consists in an alteration of the dura mater more especially. Its seat is variable, but its election seems to be for the cervical enlargement of the spinal cord. The lesion is confined at first to the dura mater, but extends subsequently to the cord itself and the nerves arising therefrom. It is probable that cases that have been reported as hypertrophy of the spinal cord have been of this nature, the cord being compressed by the thickened membranes. The pia mater becomes affected, but in a much slighter degree than the dura mater.

The spinal cord participates in the change, and presents the characters of an irregularly distributed myelitis, attacking both the white and grey matter. The peripheral nerves also become implicated, both in their anterior and their posterior roots—a circumstance to be borne in mind relatively to symptoms.

The symptoms which indicate this lesion have their early stage, or painful period, which lasts about three months. Pain of an extremely severe character occurs in the back of the neck, spreading up to the vertex and downwards to the shoulders. A degree of rigidity accompanies these pains, which are subject to irregular exacerbations. Coincident with the pain are formication and numbness of the upper extremities, and sometimes bullæ or pemphigus. These symptoms indicate an irritation of peripheric nerves.

The second stage of the malady depends upon the extension of the affection to the spinal cord and nerve-roots. The pain ceases in the limbs, which become paralysed, atrophied, and contracted in a manner which recalls the amyotrophic paralysis from lateral sclerosis. It is worthy of note that in the forearm the muscles supplied by the radial and median nerves suffer directly, while those that receive their influence from the radial (ulnar?) are less affected. Possibly this may depend upon the point of origin of the nerve-roots.

The lower extremities in their turn become paralysed, and later still become contracted, as in lateral sclerosis. The reverse, however, is here observable in the last-named affection. In pachymeningitis, the muscles of the lower extremities do not become atrophied.

The motor paralysis is produced by centres of myelitis occurring consecutively on the meningitis. The absence of amyotrophy is a feature which distinguishes the paraplegia which accompanies the lateral sclerosis from that which is associated with cervical pachymeningitis. In this last, bed-sores and disturbance of the functions of the bladder and rectum are rapidly developed, which symptoms are absent in the lateral amyotrophic sclerosis. In addi-

tion to the preceding differential features, is the rarity of implication of the medulla oblongata in pachymeningitis, which is one of the essential elements of lateral amyotrophic sclerosis.

[In the *Transactions of the Pathological Society of London* (1869, p. 354-57), Dr. Lockhart Clarke described and figured an enormous thickening of the membranes of the cord. Around parts of the cervical region of the cord the membranes resembled a layer of smooth leather, and were inseparably adherent to each other. The posterior roots of the nerves, on each side, appeared through the membranes, like thick cords firmly bound down to the surface of the white columns. The large size of the nerve-roots was due to hypertrophy of the pia mater and the connective tissue around them, and between their bundles. Instead of being separated from each other by only a small quantity of connective tissue, the bundles of nerve-roots were kept widely apart by an enormous quantity of this tissue, which abounded in round and oval nuclei of different sizes —*Rep.*] W. B. KESTIVEN, M.D.

MITCHELL ON SPINAL ARTHROPATHIES.—In a paper in the *American Journal of Medical Sciences* for April, 1875, Dr. Weir Mitchell expresses his concurrence with the views of Charcot as to the two forms of joint lesions of spinal origin. The one is acute, or subacute, accompanied by redness, swelling, and sometimes with more or less violent pain. The chronic form is of slow growth. The general clinical characters which distinguish them from common rheumatism of joints are their limitation to the joints of the members afflicted with palsy, their relation in time to hemiplegia, and the co-existence of other trophic troubles. There is also something in the status of a palsied limb which favours the increase of an already present rheumatism. The arthropathies which result from injuries to nerve-trunks, as well as those due to some more central lesions, seem due rather to irritative states than to absolute defects of power. It has been shown that they are caused neither by vascular palsies nor by vasal spasm, nor yet by inertia, which is competent to cause, in limbs long at rest by splints, certain chronic forms of joint-disease. 'I have certainly seen,' says Dr. Mitchell, 'neuro-traumatic joint-disease break out suddenly, and with terrible severity, within three days of a nerve-lesion, which but slightly affected either motion or feeling, and which certainly gave rise to no atrophies, so that it seems unfair to attribute them to defects of nutrition in this sense or that direction. Even very slight lesions of nerves affect the cutaneous secretions; and it seems fair to infer that disturbances in the chemical balances of the deeper tissues may likewise arise from as slight neural causes. When the lesion is in the nerves, it is associated rather with partial sections of one nerve than with complete sections. Is the effect carried directly along the injured peripherally distributed fibres and so affects the joint; or does the local irritation influence the centre, and through it, and the still entire nerve-threads, act upon the joint to disorder its nutritive life?' Dr. Mitchell inclines to the latter view. Hitherto, in all the reported cases of neural arthropathy, there has been a passive central or peripheral nerve-lesion, and usually there has been also precedent symptoms not related to the joints, such as atrophy, paralysis, anaesthesia, or hyperaesthesia. In three of the four histories related here, the joint-lesion came first, existed alone

for a time, and was followed by other nutritive, sensory, and motor conditions of the limbs, which reveal the spinal column as the organ upon which the whole chain of phenomena depended.

J. MILNER FOTHERGILL, M.D.

KNOX ON DEFECT OF THE CORPUS CALLOSUM.—In the April number of the *Glasgow Medical Journal* Dr. Knox records, and illustrates by a lithographic plate, a case of defective corpus callosum in the human subject. This occurred in a female idiot, about forty years of age. During life there had been no paralysis, and the special senses were all present, but how far defective could not be determined. Her muscular development was good, but she seldom walked, generally preferring to roll on her back on the ground. On examination of the brain after death the corpus callosum was not discoverable, and the fornix, moreover, was completely divided in the middle line [the patient being thus, *quoad* her brain, reduced to the level of a bird.—*Rep.*]. The anterior pillars of the latter could be traced to the corpora albicantia. It was not determined whether the soft commissure was present or not. The convolutions were numerous, but small.

The value of the paper is much enhanced by an exhaustive bibliography of the subject, no fewer than fourteen authors having recorded similar cases. As regards the etiology of this defect, dropsy of the ventricles would seem to be the most frequent, if not the sole cause. Dr. Knox concludes (1) that when the commissural system is wholly absent, or very rudimentary, idiocy or imbecility prevails; (2) that when the corpus callosum is only partially defective, while the other commissures are present, an intelligence slightly below the average, together with dullness or childishness, will be characteristic of this condition. J. C. GALTON.

FRUA ON A CASE OF PROLAPSE OF THE URINARY BLADDER IN AN INFANT.—Dr. G. Frua writes in the *Annali Universali di Medicina* for March, 1875, that an infant six months old was brought to hospital, supposed to have been suffering for a fortnight from prolapse of the rectum. Instead, however, of rectal prolapsus, there was found in the region of the vulva a substance of the size of a small nut, having a very slightly rugose mucous surface, and a wine-red colour. On raising the tumour, or pressing it towards the upper angle of the vulva, the vaginal opening was rendered distinct; and when the rectum contracted, urine was seen to escape from two small apertures at its lower part, corresponding to the ureters. The prolapse was considered to be irreducible. The bladder had escaped through the urethral canal, which encircled it like a paraphimosis, and if it could have been reduced, it would have been again prolapsed by the dysenteric forcing with which the child was affected. The child died fifteen days after admission, a month after the condition was first observed. A *post mortem* examination confirmed the diagnosis; the ureters were much dilated, and probes introduced into them passed out through the openings observed in the prolapsed bladder. A. HENRY, M.D.

RECENT PAPERS.

A Tumour: What was it? By Dr. J. K. Maconchy. (*Dublin Journal of Medical Science*, May, 1875.)
On Two Cases of Pulmonary Thrombosis, developed in the Course of Visceral Cancers. By M. G. Homolle. (*Progrès Médical*, May 15.)

MEDICINE.

CARPENTER ON THE RATIONAL TREATMENT OF SOME FORMS OF HEMIPLEGIA.—In the *Practitioner* for May, Dr. Alfred Carpenter gives a summary of several cases of hemiplegia with the treatment adopted. He gives as a typical case the following. 'A man, aged fifty-six, has had for some time a feeling of malaise and discomfort, with an increasing feeling of weakness, and an inaptitude for either mental or muscular work. For this he takes more stimulants than usual to keep him up to the mark. "Pick-me-up" is the favourite expression when taking the dram. The patient is off his appetite; he eats but little, and that little must be rich and uncommon; he requires to have his appetite tempted. Then he has a sudden attack of giddiness, becomes faint, either falls or quietly lapses into a state of unconsciousness for a time; sometimes he is convulsed. On recovery from his comatose or semi-comatose state it is found that one side is weak; it then becomes gradually paralysed, speech is affected, the mouth is distorted, and there is more or less perfect hemiplegia, both sensation and motion being altogether lost, or motion alone being interfered with. If the patient recover from the shock or surprise, the hemiplegic symptoms gradually decrease, and at length altogether disappear; the unfavourable symptoms pass away in a year or two, and if a proper course is followed they need not recur.' In the majority of such cases, in which absolute recovery has taken place, Dr. Carpenter has come to the conclusion that they were due to a condition of blood similar to what is found in suppressed gout. As soon as the patient begins to recover, his talk is of debility. If he do not impress this view of the case upon his medical attendant, his friends do. Then comes the great error of treatment. Liberal supplies of animal food, so much wine, and so much tonic are insisted on, until the gouty condition is again established, and the patient goes down again. On the other hand, it is more rational to remember the damaged tubes and to take off as far as possible the pressure upon them, so as to obviate a second attack. For this end a restricted diet is very desirable; and fish, farinaceous food, milk, and vegetables should form the staple of the patient's diet. The bowels should be kept gently open by saline purgatives freely diluted, and the circulation may be kept quiet by some vascular depressant. In addition to this, the muscles of the affected side are to be well exercised by an attendant. They should not only be well kneaded, but they should be firmly grasped and the blood squeezed out of them regularly. By such means the muscles are kept in good condition, and are ready to act on any slight nerve-stimulus. As the patient recovers, the appetite often becomes very keen, and it is rather difficult to restrain it; if, however, the above dietary be strictly adhered to, no evil comes of it. If the dietary be such as to allow a return to the original condition, then future attacks will follow. A fish-diet, judiciously combined with other articles of food, appears to have been the means of restoring to perfect health many men who were thought to be past recovery. It has enabled many to use their brains again without injury. A certain amount of intellectual activity is beneficial.

[These remarks of Dr. Carpenter's, taken with the

experiments of Dr. Parkes, at Netley, as to the effects of a non-nitrogenised diet in lowering blood-pressure (*Lancet*, May 23, 1874) indicate the proper line to adopt in cases of hemiplegia occurring in gouty individuals or the subjects of chronic Bright's disease, where such paralysis is very common.—*Rep.*]

MORRIS ON THE USE OF ALCOHOL IN DISEASE. In the *Philadelphia Medical Times* for April 10, Dr. J. C. Morris has an article on this subject. After giving the most recent views of the action of alcohol, and of some other stimulants, together with some statistics of cases of typhoid fever treated with varying quantities of alcohol, he concludes thus. 'Three things should ever be borne in mind in the administration of alcohol, except in cases of shock or hæmorrhage. 1. It should be given in small, definite quantities, at intervals of three or four hours generally, so as to produce repeatedly the primary effects, and avoid the second or third stage of its action. 2. It should always, if possible, be accompanied by food, which may thus aid in the permanent invigoration of the patient. 3. It should be withdrawn gradually, but steadily, as the patient regains strength, and no patient should be left to the continued use of it after recovery. While the disease or debility continues, large quantities will often be necessary; but as the powers of the system are restored, the desire for it will lessen and disappear, unless an unnatural appetite or craving is awakened. It has been my experience that patients generally as readily and gladly assent to its withdrawal as to that of other medicines, when the need for it has ceased; and after a practice of more than twenty years, I have yet to have upon my conscience the knowledge that one fellow being has fallen into habits of intemperance (so far as I know) from my prescription. One word as to its abuse. It was a severe definition, but one, unfortunately, not farther from the whole truth than such definitions usually are, which was given by the late Rev. Dudley A. Tyng, when speaking of the habitual use of alcohol: 'The man to whom even one glass of liquor a day is a necessity is a drunkard.'

J. MILNER FOTHERGILL, M.D.

ANDRAL ON GLYCOSURIA.—At a late meeting of the Académie de Médecine of Paris, M. Andral read a note based on the analysis of eighty-four cases of diabetes observed by him, of which we reproduce the principal passages. Glycosuria in these eighty-four cases had not attacked all ages indiscriminately; at the time they came under M. Andral's observation two only were under six years of age (three and five years old), three were from ten to twenty years old, twelve from twenty to thirty, twenty from thirty to forty, and the same number from forty to fifty, thirteen were from fifty to sixty years old, twelve from sixty to seventy, one seventy-three, and one seventy-eight years of age. It hence follows that glycosuria, which is a very rare occurrence before twenty years of age, becomes less so from twenty to thirty years of age, acquires its maximum of frequency between forty and fifty years; would be somewhat frequently met with from fifty to seventy years of age, and after that age would only be the exception; that is to say, the greatest frequency of the disease would coincide with that epoch of life when the organic powers are in the most active condition, but these times of life are not those in which diabetes had first made its appearance. M. Andral could only be cer-

tain of this fact in sixty out of the eighty-four patients, and he found that in them diabetes had made its first appearance in twelve cases before thirty years of age, in forty between thirty and sixty years of age, and so on. The two sexes were not equally represented, there being fifty-two men to thirty-two women in the eighty-four cases. Amongst these eighty-four cases, there were several which were useful in showing the influence of the nervous system on the production or aggravation of the disease. In fact, in several of these cases the urine was suddenly seen to become loaded with glyose after severe mental disturbance. Thus, under this influence, urine, which only contained twenty grammes of sugar to the litre, four-and-twenty hours later contained ninety-six. In more rare cases, the first manifestation of diabetic accident quickly followed a similar cause. We know that the density of the urine is more considerable in glycosuria than in any other disease. Whenever the urine contains more than twenty-nine grammes of sugar to the litre, M. Andral has seen the ureometer mark more than 1,030, keep itself in a great number of cases between 1,032 and 1,038, often also between this last figure and 1,042, then rise in fewer cases from 1,042 to 1,045 and once mark 1,047, which is the maximum observed by him. M. Andral, from comparative observations he has made, believes himself to be able to come to the conclusion that, when the density of the urine is greater than 1,036, the existence of glycosuria may be affirmed. The general treatment adopted in these eighty-four cases consisted in the use of alkaline drinks, and in an alimentary regimen, principally but not exclusively composed of animal substances, to which M. Andral added some green vegetables and bread. In the course of this treatment the sugar disappeared in the case of a few of the patients without re-appearing; in others it also disappeared, but to again make its appearance; finally, in other cases it remained equally abundant, and even increased. When this was the case, M. Andral absolutely prohibited the use of starchy food, and nourished the patients exclusively on animal substances, taking special precautions to assure himself that this regimen was strictly observed. Nevertheless, the sugar continued to make its appearance in the urine. Besides, it was impossible to continue this regimen indefinitely, seeing that at the end of a certain time the patients found it so distasteful that there was no choice left as to giving it up. And here there occurred a remarkable fact in the case of a patient whose urine during this regimen had contained a larger and larger proportion of glyose, rising from fifteen to twenty, thirty, forty-four and forty-nine grammes to the litre; it gradually contained less, until it diminished progressively to the original quantity of fifteen grammes, so soon as M. Andral allowed him to take eggs, milk, a little bread, and vegetables. But this desirable change was not lasting. On the continuation of this regimen, the glyose again increased and rose to fifty-four grammes per litre. Another patient, also placed under a regimen of exclusively animal food, still showed eighty-two grammes of sugar per litre of urine. These facts only serve to confirm the results obtained by M. Claude Bernard, who found a considerable quantity of sugar in the blood of the hepatic veins of animals fed on albuminoid substances.

SIMONIN ON THE INFLUENCE OF ANÆSTHETICS ON THE TEMPERATURE.—M. Simonin has

arrived at the following conclusions (*Bulletin de Thérapeutique*, April 30) on the temperatures induced in the human subject by the different stages of anæsthesia produced by chloroform. During the period termed excitation, the temperature was heightened by eight-tenths of a degree. During the surgical period, the temperature was twice again increased by a tenth of a degree; but it generally showed "a recoil varying from two to eight-tenths of a degree. During the stage of collapse, the lowering of the temperature was found to be nine-tenths of a degree below the acme. On investigating the totality of the manifestations, the temperature was found to have risen during the anæsthesia from one to nine-tenths of a degree (Centigrade) above the starting-point. Taking the totality of the manifestations, the temperature was found to be from one to two-tenths below the starting-point, sometimes even from one to four-tenths.

The temperature at the awakening was sometimes observed to be similar to the temperature of the outset. Sometimes it was from about two to five-tenths higher; sometimes it was found to be from one to six-tenths of a degree lower than the temperature at the outset.

In some cases the lowered temperature seems to have been explained by hæmorrhage; sometimes, however, as there was no hæmorrhage, this interpretation could not be entertained. The age, etc., of the patients, do not appear to have modified the results recorded.

It does not seem that the increase of temperature during the period of excitation and the commencement of the surgical period should be attributed to a paralysis of the vaso-motor nerves. The theory of a special and primary excitation of the nervous organic origins by anæsthetic agents appears very plausible.

D'AZAMBRYA ON OZÆNA AND ITS TREATMENT. Dr. D'Azambrya sums up in his *Thèse de Paris*, December, 1874, no. 465, the results obtained in special aural and nasal practice at La Pitié Hospital. His conclusions are the following. 1. Ozæna is a chronic fetid coryza; in other words, where ozæna exists there must be chronic inflammation of the pituitary membrane or the subjacent tissues, and fetidity of the breath. 2. Ozæna is almost always of a scrofulous or a syphilitic nature; occasionally it is met with without any known cause, or after traumas, foreign bodies or calculi of the nasal fossæ, or destructive lesions supervening as complications of the decline of, or the convalescence from, acute fevers; still more rarely is ozæna of an herpetic nature. 3. There is a simple and non-ulcerous ozæna without osseous lesions, which is owing either to scrofula or syphilis. The ulcerations of scrofula proceed from the superficial to the deep parts, and are more irregular than those of syphilis. Syphilitic ulcerations are constituted by two different processes:—(1) By eruptions analogous to those observed in the skin, and which on this account should be called syphilides of the nasal fossæ; (2) By softening and opening of syphilitic gummata. 4. The most serious ozæna is that which commences by primitive lesions of the bony structure (caries and necrosis). Necrotic ozæna at the first onset is more common in syphilis than in scrofula. Ozæna always accompanies the disease described under the name caseous coryza. The treatment of ozæna ought to be at once general and local. The

general treatment is the same as that of scrofula and syphilis. The best local method of treatment consists : 1. In douches and nasal irrigations ; 2. In the direct cauterisation of the ulcerations. This method gives excellent results even in cases of necrotic coryza. The surgical treatment by the method of Rouge of Lausanne gives more rapid results, but it has its dangers—phlebitis, purulent infection, incomplete operation—and should only be employed in cases where the disease is intractable to non-surgical treatment employed continuously and methodically.

LONDON ON THE ENDEMIC FEVER OF JERUSALEM, AND ITS ETIOLOGY.—Dr. London, during an eight years' stay in Palestine, in a professional capacity, had a good opportunity of observing the diseases of that region. He states, in the *Report of the Session of the Gesell. der Aerzte zu Wien, in Allg. Med. Cent.-Zeit.*, March 13, 1875, and *New York Medical Record*, that the prevailing disease at all seasons of the year in Jerusalem is fever of the intermittent, remittent, and pernicious varieties. He attributes their occurrence to the cistern-water in common use. This is collected principally in the winter, and in the course of the summer becomes exceedingly foul and full of organic impurities, from standing so long in the imperfect and filthy cisterns. To fifty patients suffering from intermittent fever he gave quinine in large doses, but at the same time allowed them to drink the ordinary cistern-water. To another fifty he gave no quinine, but simply took pains to have them supplied with drinking-water brought from a well two miles distant from the city. The latter promptly recovered from their intermittent fever, while the former fifty either did not get rid of it, or had frequent relapses. The cases of fever are much less numerous during winter, when the water is fresh. Dr. London also believes, that the dysentery and cholera, which likewise prevail, are referable largely to the same cause. He found that these cases were benefited by quinine.

RECENT PAPERS.

- A Case of Malignant Fever taking on a Hydrophobic Form. By Dr. Battus. (*Montpellier Médical*, May, 1875.)
- On the Ways by which Tuberculosis is transmitted, besides Heredity. By Dr. Dutreux. (*Montpellier Médical*, May, 1875.)
- Critical Study on the Pathological Physiology of Diabetes. By Dr. Durand-Fardel. (*Gazette Médicale de Paris*, May 15.)
- Migraine : Treatment with Guarana. By Dr. Field. (*Virginia Medical Monthly*, May, 1875.)
- The Prognosis and Treatment of Diphtheria. By Dr. F. Gatti. (*Annali Universali di Medicina e Chirurgia*, April, 1875.)
- Insufficiency of the Aorta and Mitral Valves, and Excentric Hypertrophy of the Heart. By Dr. C. Bianchetti. (*Giornale Veneto di Scienze Mediche*, April, 1875.)
- Paralysis of the Pneumogastric Nerves in Intrathoracic Aneurism : Electrolysis : Sphygmography. By Dr. M. De Cristoforis. (*Annali Universali di Medicina e Chirurgia*, April, 1875.)
- On Arterial Transfusion of Defibrinised Human Blood in the Course of Abdominal Typhus (Enteric Fever). By Professor Mosler. (*Berliner Klinische Wochenschrift*, May 17.)
- Two Cases of Melanæmia. By Dr. Kornmüller. (*Medicinisch-Chirurgisches Centralblatt*, May 14.)

SURGERY.

MADELUNG ON DUPUYTREN'S CONTRACTION OF THE FINGERS.—Dr. Madelung, of Bonn, in an article on the etiology and operative treatment of contraction of the fingers (*Berliner Klinische Wochenschrift*, no. 15, 1875), states that, having had many opportunities of observing this affection, he agrees with the majority of surgeons in Germany and other countries, in their views as to the uselessness and even the danger of its operative treatment as hitherto practised. The etiology of the so-called Dupuytren's finger-contraction is discussed, and a description then given of the treatment carried out in such cases by Dr. Busch, of Bonn, which treatment seems to have been invariably attended by good results. The statement of Dupuytren, that this affection occurs only in men, and in those who obtain their living by hard manual labour, is contested by Dr. Madelung, who has seen contraction of the fingers in merchants and persons in good circumstances, and in one case, in an old woman who had not at any period of her life used her hands in any kind of hard work. Of considerable etiological import, according to Dr. Madelung, is the fact that in many cases of finger-contraction the affection has been preceded at a distant period, by inflammation, generally of a chronic form, in the palm of the hand. In most old people, males and females, there may be found, it is stated, a tendency to contraction of the fingers, so that complete digital extension, whether passive or active, is no longer possible. This senile condition, and the affection known as Dupuytren's contraction, are supposed by Dr. Madelung to be both due to the absorption of the numerous small deposits of fat which in healthy, young, and middle-aged subjects, exist between the connective tissue bands of the palmar fascia, and the short fibres which connect this fascia with the superjacent integument. The presence of this adipose tissue in the palm of the hand is well known to dissectors, from its giving so much trouble in anatomical preparation of this region, especially of that portion between the linea mensalis and the roots of the fingers. This deposit of adipose tissue disappears in old age, and after any injury to the palm of the hand, which may result in acute or chronic inflammation or in suppuration. The soft structures of the palm being no longer well protected against the effects of pressure from without, and the connective tissue of the palmar fascia being compressed between the heads of the metacarpal bones and any hard external body grasped by the hand, this fascia falls into a state of chronic inflammation and hyperplasia, and becomes contracted so as to cause permanent flexion of the fingers. When once any portion of the palmar fascia has become tense and prominent, the contraction rapidly becomes more marked, in consequence of the more ready exposure of the affected portion of the palm to the exciting causes of chronic inflammatory action. This view of the causation of finger-contraction serves better than any other hitherto proposed, to account for certain facts in connection with this affection ; such, for instance, as that of the symmetrical occurrence of the digital contraction in both hands, and that of the frequent appearance in persons who have gone through much and severe manual labour.

The operation performed by Dr. Busch for the cure of contracted finger consists in excising the retractile portion of palmar fascia. In a case, for example, of contraction of the little finger, the patient having been put under the influence of chloroform, an angular flap of skin with its base at the root of the finger, and at its apex at the inner margin of the hand towards the wrist, is taken from the palm. The skin, with as much as possible of the subcutaneous connective tissue is then dissected up, and the contracted portion of palmar fascia exposed. This tense fascia, as the finger is being gradually straightened, is cut away bit by bit with the point of a small scalpel until there is no longer any impediment to complete extension. The flap is then replaced and retained in position by sutures. The raw surface left near the angle of the flap may, if not very wide, be closed by bringing together with sutures the edges of skin. The finger is allowed to remain free for some days after the operation; but when granulation has been established, a cylinder of wood is placed in the palm of the hand for its support, which cylinder, in the course of a few more days, is removed, and the finger is then kept extended by means of a small straight splint applied to the back of the hand. This straight splint is removed every day in order to permit change of dressing to the wound, and movement of the previously contracted finger. On complete healing of the wound, which takes place usually in three or four weeks, the hand is left free, and the patient is instructed to complete the treatment by frequently exercising passive and active movements of the finger. In a case where several fingers are contracted, it is not thought advisable to free them all by one operation, as too large a wound would thus be formed in the palm of the hand. Still, where no more than two fingers are contracted, a single operation may be performed. Dr. Madelung states that in his experience Busch's operation has never been followed by any bad results, and that he has never seen after it diffuse suppuration, inflammation of a tendinous sheath, or even trismus.

This operative treatment, in Dr. Madelung's opinion, is to be preferred to Guérin's operation for dividing the flexor tendons of the contracted fingers, to Dupuytren's practice of dividing the palmar fascia by a transverse incision made near the root of the fingers, to Sir A. Cooper's practice of dividing subcutaneously the retractile bands of fascia, and to Goyrand's operation by which the fascia is divided transversely after its exposure by deflecting on either side the lips of a long wound made from above downwards on the palm of the hand. These proceedings are based, in Madelung's opinion, on a mistaken idea as to the etiology of the affection, and will therefore nearly always fail. They all necessitate the subsequent application of orthopaedic treatment and the use of costly and complicated apparatus. The success attending Dr. Busch's treatment seems to have been due in great measure to the fact that the previously contracted finger is not interfered with for some days after the operation; and that movements, whether passive or active, are not made, and extension not maintained, until granulation has been well established in the wound of the palm.

W. JOHNSON SMITH.

AZAM ON A CAUSE OF THE PERSISTENCE OF HERNIARY STRANGULATION AFTER REDUCTION.—At the meeting of the Paris Academy of Sciences

on April 12, M. Azam read a paper on this subject, of which the following are the conclusions (*Bulletin de Thérapeutique*, April 30). By taxis or reduction after operation, the intestine may be pushed back under the detached peritoneum or inside an epiploic cord. This accident is mortal, for it is unobserved, and the strangulation continues without, as a general rule, the surgeon being able to intervene in time to be of any use. The backward and inward direction generally given by the surgeon to his efforts is the cause of this complication. In order to avoid it, the operator should perform the reduction, placing himself on the side opposite to the tumour, and should direct his efforts upwards and outwards, almost parallel to the axis of the body. If an operation have taken place, he should not neglect to keep the sac outside to avoid the transversal folds of the neck.

RECENT PAPERS.

- A New Method of Arresting Hæmorrhage. By Dr. Weber. (*New York Medical Record*, May 1.)
 Strangulated Crural Hernia. By Dr. Massé. (*Montpellier Médical*, May, 1875.)
 On Anæmia and Hypertrophy of the Liver in a Hæmorrhoidal Patient. By Professor Verneuil. (*Progrès Médical*, May 15.)
 On Diagnosis in Diseases of the Hip-Joint. By Dr. Fayette Taylor. (*New York Medical Record*, May 8.)
 Contribution to the History of the Application of Carbolic Acid in Surgery. By Dr. F. Franzolini. (*Giornale Veneto di Scienze Mediche*, April, 1875.)
 Clinical Note on Vulvar Anus. By Dr. Melchiori. (*Annali Universali di Medicina e Chirurgia*, April, 1875.)
 Case of Phlegmonous Esophagitis ending favourably by Abscess. By Dr. Carlo Padova. (*Ibid.*)
 The Elastic Seton. By Dr. L. Ciniselli. (*Ibid.*)
 Case of Resection of the Knee-Joint for Gunshot Injury. By Dr. Meusel. (*Berliner Klinische Wochenschrift*, May 17.)
 On Shock. By Dr. F. Falk. (*Wiener Medizinische Wochenschrift*, nos. 19 and 20, 1875.)

MATERIA MEDICA AND THERAPEUTICS.

PLANAT ON PICROTOXINE AS A REMEDY FOR EPILEPSY.—To M. Felix Planat's work on this subject has been awarded one of the premiums under the foundation of the Prix Barbier at the disposal of the Paris Academy of Medicine. M. Planat's researches, as recorded in his *Recherches physiologiques et thérapeutiques sur la Picrotoxine*, have been directed to the endeavour to find some remedy for epilepsy. To this end he proposes, not as a specific, but as a really useful medicine, picrotoxine, the active principle of *cocculus indicus*. He administers it in the following way: *Cocculus indicus*, 200 grammes; alcohol, 1,000 grammes; allowed to macerate for three weeks. Give two to three drops of the alcoholic tincture, increasing from two drops daily, then diminishing. The treatment should be prolonged for several months, or even a year. According to M. Planat, the anatomical seat of epilepsy is in the spinal marrow; the contraction of the sanguineous capillaries brings on a bulbar ischæmia, and this ischæmia in its turn produces convulsions. The picrotoxine acts on the bulb; it is a convulsant poison, therefore, in accordance with the axiom 'similia similibus,' it will cure epileptic convulsions.

The commission appointed to adjudge the Barbier

prize, however, neither guarantees M. Planat's theory nor his experiments, although he asserts that he has by the administration of picrotoxine brought on convulsions, with foam at the mouth, in a rabbit, a kitten, and in animals of a lower organisation, as frogs, crabs, and even in snails and slugs. Neither does the commission guarantee the veracity of the numerous cures with which M. Planat credits himself. The Academy, however, has shown its estimation of meritorious work carried on through twelve years, by the award of a premium of five hundred francs to M. Planat.

ROUBAND ON THE BROMIDE OF LITHIUM.—In a recent memoir on this substance, M. Rouband arrives at the conclusions (*Bull. de Thér.*, April 30) that bromide of lithium is a drug having two actions. It possesses in a high degree the lithotropic qualities generally recognised as appertaining to the salts of lithia. It affects the reflex sensibility in a stronger manner than the other bromides, without having the objectionable action on the heart of bromide of potassium. Consequently, its place in therapeutics is marked out in the first order of antilithic and sedative drugs, and its action is particularly valuable in those accidents of the uric acid diathesis which are accompanied by painful symptoms, and in the neuroses which are often complicated by the presence of uric acid.

RECENT PAPERS.

- On the Action and Use of Aconitia. By Dr. John Harley. (*St. Thomas's Hospital Reports*, vol. v.)
 Serpiginous and Phagedænic Ulceration and Quinine. By John Croft. (*Ibid.*, vol. v.)
 On the Treatment of Poisoning by Phosphorus by Means of Intravenous Injections of Oxygen. By Professor Thiernesse. (*Annales de la Société de Médecine de Gand.*)
 The Action and Use of Mercury on the Animal Economy. By Dr. Lindley. (*Cincinnati Lancet*, May, 1875.)
 Practical Notes on Salicylic Acid. By Dr. Boyland. (*Virginia Medical Monthly*, May, 1875.)
 Nitrite of Amyl in Epilepsy. By Dr. MacBride. (*Chicago Journal of Nervous and Mental Disease*, May, 1875.)
 Contribution to the History of Jaborandi. By Dr. L. Tonoli. (*Gazzetta Medica Italiana-Lombardia*, May 15.)
 Salicylic Acid in Catarrh of the Urinary Organs, with Ammoniacal Fermentation of the Urine. By Dr. P. Fürbringer. (*Berliner Klinische Wochenschrift*, May 10.)
 The Antiseptic Property of Salicylic Acid compared with Carbolic Acid. By Julius Müller. (*Ibid.*)

PSYCHOLOGY.

FOTHERGILL ON CEREBRAL ANÆMIA.—In the fourth volume of the *West Riding Asylum Reports* (1874), Dr. Milner Fothergill considers the subject of general cerebral anæmia, with its different causal conditions. He then takes up the subject of local cerebral anæmia, as in melancholic states where the intellect is unaffected. He follows Schröder van der Kolk and Laycock in regarding the occipital lobes of the cerebrum as the seat of the systemic sensations. He then points out how these parts are supplied by the posterior cerebral arteries, which are branches of the basilar artery, with the small posterior communicating branches of the circle of Willis. This inosulation by the circle of Willis, Dr. Fothergill holds to be less perfect than is usually credited, and that there is often an anæmic condition of the parts supplied by the vertebral arteries, when no such condition exists in the ante-

rior and parietal portions of the brain, fed by the branches of the internal carotid arteries. Not only is the blood-supply of the occipital lobes different from that of the rest of the hemispheres, but the vaso-motor nerve-supply of their blood-vessels is also differently derived. The internal carotid is supplied by the ascending branches of the superior cervical ganglion; while, on the other hand, the vertebral arteries are supplied with vaso-motor fibrils from the inferior cervical ganglion, which receives the ascending branches of the thoracic ganglia, including the fibres of the splanchnics which ascend from the abdomen. Cyon and Aladoff have shown that the vaso-motor nerves of the liver actually run down the vertebral arteries, through the lower cervical ganglia, after which they form the annulus of Vieussens, and then pass on to the first dorsal ganglion, and thence through the gangliated cord of the sympathetic, down the splanchnics, to the coeliac ganglion, and along the hepatic vessels of the liver. Hence, he contends, we can see that there is a direct anatomical association betwixt the nerves of the liver and those of the vertebral arteries; and from this we can comprehend the condition of melancholia existing along with derangement of the liver without the intellect being affected. Dr. Fothergill holds that in the vaso-motor supply of the vertebral arteries from which the occipital lobes of the brain are fed, we may find the explanation of the association known to exist betwixt a melancholic or depressed condition—anæmia of the occipital lobes—and abdominal disturbance, as a displaced uterus, an accumulation of fæces, Addison's disease, or irritation in the reproductive organs. In a case related by Schröder van der Kolk, melancholia came on immediately after displacement of the womb, and as suddenly passed away on its replacement. Melancholia is due, he holds, to anæmia of the occipital lobes; while loss of intellectual power follows when the anæmia is general, as in acute dementia. The motor and ideational centres may lie upon one vascular area, while the systemic sensations may occupy a vascular area of their own. At least, such association is found in the combination of motor and intellectual disturbance in the general paralytic, where the anterior and middle lobes are chiefly implicated; while in emotional disturbance associated with abnormal systemic sensations, commonly found together in the melancholic, according to Schröder van der Kolk at least, the morbid changes are found in the posterior lobes.

OPHTHALMOLOGY AND OTOTOLOGY.

PONCET ON OPACITIES OF THE VITREOUS HUMOUR AS THE RESULT OF ARTERITIS.—In the *Annales d'Oculistique* (March, 1875) is an elaborate record of the case of an officer, aged forty-five, who had been for some years the subject of cerebral disease, with failing vision, followed by opacities in the vitreous body and total blindness. Death occurred rather suddenly, and, as the necropsy showed, apparently from thrombosis of the basilar artery. The condition of the eyes was thoroughly examined, and is elaborately illustrated in the present article. The state of both eyes was much the same, and the feature presenting most interest was the extensive infiltration of the layers of the retina, and of all

the other tissues, with pigment-granules. As the case could hardly be classed as one of retinitis pigmentosa, as generally understood by that term, the author gives a concise sketch of the various opinions which are held by pathologists as to the mode of origin of the pigmentation in cases of this kind. He considers that the case cannot be correctly termed retinitis pigmentosa, because there was a general infiltration of the retina with coloured particles, and along the course of the vessels; there was no atrophy of the optic nerve, and the central artery presented no lesion.

According to Landolt (*Annales*, 1873, vol. lxi.), the characteristic signs of this affection are a chronic inflammation, situated principally in the neighbourhood of the retinal vessels, which arises in the ciliary zone, and eventually involves the other layers of the retina, the pigment-granules spreading along the course of the newly formed fibres of connective tissue.

Leber (*Annales*, 1871, vol. lxi.) has found it impossible to range under one head all the varieties of retinitis attended with deposition of pigment, and he is obliged to admit, and accordingly he enumerates, no fewer than nine varieties.

Poncet considers that the primary lesion in his case was an arteritis; and, in explanation of the mode in which the pigment of the chœrea had made its way into the substance of the retina, he argues that it could not have been, as Landolt has described, by means of newly formed connective tissue, inasmuch as no such formation occurred; but it occurs, he believes, by nuclei which travel from cell to cell, and thus make their way between and into different layers of the retina which have not been previously disorganised by inflammation. Poncet does not agree with the opinion expressed by Schweigger, to the effect that pigment-granules are inoffensive to the tissues into which they filter; he admits that under certain circumstances they may not interfere with the functions of the cell which they inhabit; but, as regards the tissues of the eye, he believes that pigmentation never occurs without undoubted evidence of structural disease, and when the pigment-granules have made their way to the vitreous humour, the result is a proliferation of the tissue of the latter, and a subsequent opacity.

In cases such as this, Poncet believes the mischief to have its starting-point in the disturbance of the choroidal pigment by inflammation; and as he demonstrated, in the present instance, evidence of arterial mischief in the choroidal network, he considers that he is entitled to the opinion that the case was one of arteritis, and all the more because it was this same arterial lesion, when localised in the basilar trunk, which had caused the patient's death.

During the life of the patient an iridectomy was performed, and, on examining the scars which resulted from the operation, they were found to be infiltrated in the same remarkable manner as the tissues within the eye. Taking this as evidence of the free passage of fluids from within the eye, Poncet is of opinion that it lends some support to those who consider that the benefit conferred by an iridectomy is due to the drainage which the operation establishes, and which it for some time maintains.

BOWATER J. VERNON.

SCHWARTZE ON MEMBRANOUS CLOSURE OF THE EXTERNAL AUDITORY MEATUS.—Professor Schwartz gives, in the *Archiv für Ohrenheilkunde*

for March, a report of a case of membranous closure of the external auditory meatus with caries of the temporal bone, in which the careful removal of the membrane from the wall of the meatus and the subsequent employment of cylinders of laminaria were followed by the complete restoration of the lumen of the meatus, which, on a *post mortem* examination being made, was found to have an epidermal covering of normal thickness, and showing no trace of the membranous growth. This is the first case of the kind in which he has obtained a satisfactory and permanent lumen.

SCHWARTZE ON THREE CASES OF NECROTIC EXPULSION OF THE COCHLEA.—In the *Archiv für Ohrenheilkunde* for March, Professor Schwartz relates the cases of Dr. Parreidt of Cologne, Dr. Bœck of Magdeburg, and Dr. Cassells of Glasgow. In the first of these cases deafness was complete on the affected side, but neither during the whole course of the affection, nor afterwards, was there a trace of paralysis of the facial nerve. In the second case paralysis of the facial was present. In the third case, after the removal of the necrotic cochlea, the hearing was improved both for speech and watch, and the patient was able to distinguish without difficulty all the notes of the scale of the piano. Should this latter case have been properly observed and reported, the theory as to the function of the cochlea by Dr. Verney, and lately revived by Helmholtz, must be thrown aside.

W. LAIDLAW PURVES.

DERMATOLOGY.

PINCUS ON BALDNESS.—Dr. Pincus read before the Medical Society of Berlin (*Berliner Klinische Wochenschrift*, nos. 4 and 5, 1875), a paper on this subject, of which the following is an abstract.

Nineteen out of twenty cases of ordinary chronic alopecia, affecting the forehead and vertex, belong to a group described as alopecia simplex (*A. furfuracea*, *Calvities senilis*, *C. præmatura*), excluding the baldness caused by parasites, alopecia areata, and defluvium capillorum from syphilis and other constitutional diseases. It is usually supposed that this affection is a passive kind, an involution, or atrophy, depending either on primary degeneration of the blood-vessels of the scalp (*Veiel*), or on atrophy of the peripheral nerves (*Voigt*, *Hebra*, and *O. Simon*). Hence the remedies employed have always been of an excitant, stimulant, or 'strengthening' character.

Careful examination, however, of the skin of the scalp, before the hair has begun to fall, shows that the naturally open and loose texture of the subcutaneous fascia has become dense and adherent; the bundles of fibrous tissue are thinner, closer, and shorter, and contain less soft areolar interstitial tissue and much less moisture.

Then follows the first stage of the disease, in which the hairs gradually lose their normal length, though each one is still as thick as before; they have no longer the glossy appearance of health; and the number which fall out daily is slightly increased, while, instead of only about a quarter of these being under six inches long, half or more of the hairs which collect upon the comb are found to be short ones; lastly, the secretion of the sebaceous glands is increased and altered in quality, constituting the pityriasis capitis, or as Hebra more correctly terms

it, seborrhœa sicca, which precedes baldness. The author regards this glandular affection rather as the result of thickening and tension of the cutis than, with Neumann, as a common result with it of some more remote cause, such as exhaustion from mental emotions, from excesses, from fatigue, etc.

The second stage of the disease is marked by decided decrease in the thickness of the individual hairs. This seems to depend upon a shrinking of the hair-follicle, just as when the thin and delicate hair of a boy's chin is converted into a beard by the hair-sacs dipping deeper down and leaving the papillary layer of cutis for its deep part, and at last for the loose and vascular subcutaneous adipose tissue. The contraction and dryness of the skin in alopecia squeezes the hair-bulb at its neck, and so the deeper parts of the follicle gradually atrophy; and, instead of reaching below the cutis, it becomes at last a shallow pit, scarcely deeper than the papillary layer, and, of course, producing a hair of corresponding short and slender dimensions.

The usual limitation of baldness to the forehead and vertex is ascribed by the Vienna school of dermatologists to its dependence on a change in the trophic influence of the supra-orbital branch of the fifth nerve. Of this Dr. Pincus sees no proof, and ascribes it to the fact that the gradual thickening, hardening, and adhesion of the cutis and subcutaneous tissue of the scalp above described normally begins on the forehead, then spreads backwards in the middle line, and finally to the occiput, and even in old men leaves the temporal regions unaffected.

[The difference in quantity and character of the connective tissue uniting the skin and deep fascia along the middle of the head from that below the occipital superior curved line and the temporal curve, is familiar to practical anatomists; but the writer does not explain why baldness is usually more advanced over the junction of the parietal and occipital bones than at the vertex.—*Rep.*]

The rarity of baldness in women is similarly explained by the fact that in the tissues of the scalp, as in many other regions, the female sex preserves the characters of childhood far more than men of the same age. But when alopecia does occur, the bundles uniting the cutis to the periosteum have been found to be short and thick in a woman's scalp.

One effect of baldness is diminution of the sensibility of the skin. This was tested both as to tactile discrimination (Weber's experiment with blunt compasses) and as to recognition of degrees of pressure. The former test is more accurately appreciated from the tenth to the fifteenth or eighteenth year; from the twentieth to forty-five or fifty there is little change, and after that time the power of discrimination decreases (independently of baldness). The smallest distance at which the two points can be distinguished on the normal scalp of an adult is twenty-five millimètres (half what Weber himself found), the points being placed transversely, except over the temples, where they are better felt when applied parallel to the long axis of the skull. Here, and on the occiput, the discrimination is most acute; next on the vertex, where the points must be thirty-one millimètres apart; next comes the frontal region; and, lastly, the part between the vertex and forehead, where the distance must be thirty-five millimètres. The difference in appreciation of pressure (tested by Eulenburg's apparatus) between the parts of the healthy scalp is much less; but here

also the part over the coronal suture seems to be least sensitive.

In the first stage of alopecia there is no change in sensibility, but in the second the points of the compasses must be more widely separated to be felt as distinct; and still more striking anæsthesia is shown by the bald scalp to the effect of pressure.

This change in the nerves of the part is not a primary one, but due to the thickening and contraction of the cutis and subcutaneous fascia. It may probably explain some cases of neuralgia of the vertex.

The microscopical appearance of a section of a bald scalp is very different from that of senile skin. [See Neumann's *Hautkrankheiten*, S. 286; and a fuller account in Dr. Pullar's translation of the second edition, p. 226. The changes in brief are: Thinning of the horny cuticle, which becomes dry and brittle; thinning of the Malpighian layer of epidermis, with increase of pigment; atrophy of papillæ; loss of fibrous bundles in the deep layer of the cutis, those which remain being therefore wide apart, thick, and granular, while the connective tissue between is either œdematous or infiltrated with a homogeneous hyaline material, like coagulated gelatine—not 'coagulated lime' (*loc. cit.* p. 227)—described as colloid degeneration by Rokitsky, and probably in some cases a true lardaceous degeneration beginning in the cutaneous blood-vessels; the subcutaneous fat is atrophied, and its cells turned into serous vesicles; the entire skin loses its elasticity, and is thrown into folds; the sebaceous glands dilate, the sudoriparous shrink, and the hair-sacs atrophy.—*Rep.*] But a microscopic section of a prematurely bald scalp shows little or no granular degeneration of the cutis, and no atrophy of the epidermis; but increase in size and closeness of the elastic and white fibrous bundles of the cutis, with atrophy of hair-sacs and sebaceous glands alike; and, instead of presenting a thin, dark, wrinkled appearance, the skin is hard, shining, smooth, and cannot be lifted into folds.

Lastly, Dr. Pincus offers some remarks on the treatment of premature baldness in the first of the stages above described—recognised by a daily loss of under fifty hairs, and among these a fourth or fifth less than six inches long, by diminished sensibility to pressure, and, after this has gone on some time, by commencing hardness and immobility of the scalp. If weak alkaline washes be applied to the hair in this state for a year or more, the progress of baldness is arrested, and in some cases the mischief already done is restored. Dr. Pincus recommends a solution of caustic potash or soda in the proportion of 1 to 250 to 1 to 500 (equal to one fluid drachm of liquor potassæ B.P. diluted with from an ounce and a-half to two ounces of water, or the same quantity of liquor sodæ diluted with from an ounce to two ounces) or solutions of the alkaline carbonates (15 to 20 grains of bicarbonate of potash or soda to an ounce of water) to be rubbed into the scalp for from three to five minutes daily, using not less than two or three drachms of the solution each time. After a time this may be done every other day, and then only once a week. 'This treatment is not inconvenient to the patient and is very convenient to the doctor, for he can say all that is necessary at the first visit, and need not see his patient again, or only three or four times in the year.' The only objection is, that the colour of the hair becomes paler during the process.

When the second stage of the affection is fully established, neither this nor any other treatment is of the slightest use. Cantharides and the other stimulants recommended have been found, Dr. Pincus thinks, to cause the still healthy hair to grow more quickly than usual and then to fall out faster than before, but they have no effect on the lanugo, and none, of course, on the empty follicles. In the early periods, however, even of this second stage, Dr. Pincus has found good results in about a third of his cases from the use of stronger alkaline washes, and of solution of corrosive sublimate (0.02 to 150, nearly six and a-half grains to an ounce). Even then the treatment must extend over months, and the result is that the progress of further mischief is stopped. Application of the continuous current has been without result; nor have local subcutaneous injections of alkali or perchloride proved more efficacious.

HOMOLLE AND OTHERS ON LUPUS.—M. Georges Homolle contributes to the *Archives Générales de Médecine* (April, 1875) a careful criticism of the views of German pathologists on the histology of lupus, with his own microscopic observations of a nodule of ordinary lupus, of an epithelioma growing on the scar of healed lupus, and of noma of the vulva. He maintains with Alibert, Bazin, Hardy, and most French dermatologists, as well as Fuchs in Germany and Mr. Wilson in England, that lupus is a 'scrofulide,' opposes Friedländer's theory that the 'granulations' of the disease are miliary tubercles, supports the statement of Virchow, Gustav Simon, Neumann, Auspitz, and all other unprejudiced observers, that, whatever its true pathology, a section of the affected skin shows the epidermis unaffected and the cutis, both papillæ and deeper layers, swollen by infiltration of small, round, nucleated 'embryonic' cells, 'leucocytes,' 'granulation' corpuscles or 'wandering cells.' He supports the conclusion of Dr. Gedding of New York and Moritz Kohn (Kaposi) that the lupus erythematosus of Cazenove is an affection of the sebaceous glands, and does not find, with Rindfleisch, that the same is true of the 'tubercular' (nodular ulceration or evident) form. His case of epithelial cancer seemed histologically unconnected with the preceding lupus, as in former cases reported by Hebra, O. Weber and others. Noma (esthiomène) of the vulva approached ulcerative lupus very closely in its histological characters. Dr. Homolle gives an excellent list of recent observations on the minute anatomy of the disease, and it may be useful to transcribe the most important of these. Pohl (Virchow's *Archiv*, 1854, vi. 190) Virchow's *Krankhaften Geschwulste*, xx. 1863; Auspitz (*Zeitschrift der Wiener Aerzte*, 1864, ii. 229, and *Archiv für Dermatologie und Syphilis*, 1871, p. 119). Kohn (ib. 1872, p. 72). Rindfleisch's *Handbook*, p. 269. Gedding (pamphlet on Lupus erythematosus, reprinted from reports of *Akad. der Wissenschaften in Wien* (1868) Volkmann's *Klinische Vorträge*, 1871. Friedländer (Virchow's *Archiv*, 1874, lx. 17).

A recent number of *Le Mouvement Médical* contains a comparison of the treatment of this disease as recommended by Devergie with that practised by M. Lailler. The former authority, as is well-known, advises internal treatment as of first importance, combining cod-liver oil in large doses, with iodide of iron, iodine of potassium, and gentian. To this he adds, in rebellious cases, bichloride of mercury and Fowler's solution. 'Quelle macédoine!'

exclaims M. Lailler (and he would find a similar hotch-potch among the prescriptions of some successful skin-doctors nearer home). He contents himself with ordering cod-liver oil and iodide of iron, with a little quinine or gentian wine, to which he adds iodine of potassium when he suspects a syphilitic taint. Treatment by sulphur externally and internally, especially at such houses of correction as *Eaux Bonnes*, is admitted in the milder cases. In others local means must be employed—tincture of iodine, juniper oil ('huile de cade,') goujon oil ('huile de noix d'acajou') as recommended by M. Bazin, iodoform, mercurial ointments, Vienna paste, etc. [There seems really no advance on the plan of treatment practised with great success by Professor Hebra, and described by his pupil, Kaposi, in the volume last translated for the Sydenham Society. Iodoform is said to be as efficient as other destructive applications, and not to cause pain. Goujon oil was tried by the reporter in one case of leprosy, and it has no effect at all; but probably its composition is variable.—*Rep.*]

FROMMEL ON ERYSIPELAS.—In the *Medicinisch-Chirurgisches Centralblatt* of Vienna (Feb. 1875), Dr. Frommel relates a case of 'erysipelas migrans.' The illness began with shivering, vomiting, and pyrexia, head-ache and giddiness. On the fourth day the patient, a healthy country girl, had ordinary erysipelas of the face with bullæ already formed. On the sixth day the shoulders and upper part of the chest were invaded, and the patient was unconscious, after having been violently delirious. Treatment was by low diet, purging, and ice to the head. Two days later the bullæ on the face had dried up, and the sharply defined edge of the eruption had descended to the epigastrium, crossing without hesitation a line which had been drawn with nitrate in the hope of stopping it. On the twelfth day of the disease the general condition of the patient was much improved; her faculties were normal, the fever gone, and the face almost well. Thick scabs had now formed on the neck and thorax, and the redness of the back and abdomen was diminishing. But in a slighter degree the disease had now spread to the hypogastrium, again unimpeded by a line of lunar caustic. A week later there was only some desquamation visible on the face, the scabs were being thrown off on the neck and chest, the redness about the waist was fast diminishing; but the skin of the buttocks and groin was red and swollen, though without vesication. At the same time the general condition of the patient kept on improving, her appetite increased, and by another week the erysipelas had disappeared without having attacked the lower extremities, and nothing but the weakness of convalescence remained. Throughout the four weeks' duration of the attack there was more or less diarrhœa.

P. H. PYE-SMITH, M.D.

RECENT PAPERS.

- On Zona. By Dr. Bucquoy. (*France Médicale*, April 21.)
 General Considerations on Skin-Diseases. By Dr. Guibout. (*L'Union Médicale*, May 4.)
 Pelliosis Rheumatica (Purpura Rheumatica). By Dr. F. P. Kennicott. (*American Archives of Dermatology*, April, 1875.)
 Notes on Some Diseases of the Skin. By Dr. Walter G. Smith. (*Dublin Journal of Medical Science*, May 1, 1875.)
 Analysis of One Thousand Cases of Skin-Diseases. By Dr. Bulkley. (*American Practitioner*, May, 1875.)

MISCELLANY.

THE Cambridge Board of Natural Science Studies announce that applications by members of the University, desirous of availing themselves of the facilities for study at the Zoological Station at Naples during the ensuing season, are to be sent to Dr. M. Foster, Trinity College, on or before October 20.

ARRIVALS AND DEPARTURES.—The new reptile house in the Jardin des Plantes, Paris, has sustained some heavy losses. A large turtle died from the shot it had received many months ago when captured in the Atlantic Ocean, and a large serpent from a wound inflicted by a rat. The rat having been offered as living food, resisted violently, and bit his adversary so deeply that he died a few days afterwards. The above heavy loss will be to a considerable extent compensated, as the Jardin des Plantes will receive in a very few days a boa more than eight yards in length, which has just arrived at Havre. It is said that this animal requires a goat or a sheep to appease its appetite at one time.

MEDICAL QUALIFICATIONS FOR FOREIGNERS IN BRAZIL.—M. Jaccoud, of the Paris Faculty of Medicine, has addressed some inquiries to the Emperor of Brazil relative to the conditions imposed on foreign medical practitioners who desired to practise their profession in the empire of Brazil. In answer to these queries, M. Jaccoud has since received an official assurance from the Brazilian Prime Minister, to the effect that the Brazilian Faculties of Medicine are authorised to allow medical men, natives of other countries, to answer the questions addressed to them in the course of the examinations indispensable to the exercise of their profession in Brazil, in their native tongue.

POSTHUMOUS OVERCROWDING. — According to M. Maxime du Camp's last and recently published volume of *Paris, ses Organes, ses Fonctions et sa Vie*, out of 45,780 deaths registered in that city during 1872, 14,987 were owing to diseases of the respiratory passages, including 7,436 from phthisis, 2,018 from intestinal disorders, and 1,966 from meningitis. The question of the interment of the dead has become one of great importance to the city of Paris. The twenty cemeteries belonging to it are encumbered with bodies, and the earth is saturated with their decomposing remains. The subject of cremation has been mooted, but with no great success, and it appears probable that the present difficulty in disposing of the Parisian dead will be met by the formation of the vast suburban cemetery at Méry-sur-Oise; a project which originated with Baron Haussman.

LOVE AND JEALOUSY.—It has, we believe, been generally held that 'our poor relations' are not subject to the influence of those passions which imply some use of the reasoning faculties. Such a conclusion, however, would appear to be invalidated by the following anecdote, if it be as authentic as the respectable source whence it is derived, the *Lyon Médical* for April 18, would seem to guarantee. It is there related that M. Cherville has seen a mare refuse her food and kick her stall to atoms from jealousy, because her groom petted and coaxed a horse, her stable companion. The same authority also states that in a stable where a cow and a donkey were stalled together, when the dairymaid came to milk the former, she was no sooner seated on the milking-stool than the donkey would leave its stall, come close to the woman, and rest its head on hers until she had finished the milking; as if the poor animal would also claim a share of her attention and affection.

AMMONIA AND SNAKE-BITES.—Professor Halford's plan of injecting ammonia into the veins of persons suffering from the effects of the bite of Australian snakes was brought forward at a late special meeting of the Medical

Society of Melbourne. The president, Mr. Bowen, read a paper on the subject, in which he gave the results of the operations hitherto performed upon those who had been bitten in the colony, and offered some observations upon that part of the report of the Indian commission in which it is laid down authoritatively that the intravenous injection of ammonia is not only useless but injurious. Mr. Bowen pointed out several sources of fallacy in the conclusions from the Indian experiments with a few Victorian snakes, and hinted at the loose and unscientific way in which the commission had generalised upon insufficient data, and without taking all the known facts into the calculation. In the discussion which followed, the general feeling of the profession was decidedly in favour of the ammonia treatment, and adverse to many of the views put forth by the Indian commission. At the same time, it was conceded that the Indian experiments with the virus upon dogs had been conducted with greater care, precision, and completeness, than those made here many years ago. The discrepancy as to the fatal results of the poison in the two countries was, however, inexplicable. Whereas inoculation with the virus in Calcutta seems to have killed a small proportion of the animals operated on, almost every dog died in Melbourne after the snake had been made to bite. An independent set of experiments was made by Dr. M'Crea, the chief medical officer, long before Professor Halford came to the colony, with precisely similar results to those arrived at by the professor subsequently. Every dog Dr. M'Crea caused to be bitten died. How, therefore, the Indian commission failed to kill their dogs with the same kind of snakes, has yet to be explained. It has been suggested that the sea-voyage and the difference in climate and food may have lowered the quality of the venom of the Australian snakes sent to India. It was finally resolved to appoint a commission of the members of the Medical Society, independently of Professor Halford, to investigate the whole subject, and especially to go through all the experiments of the Indian commission on animals in a precisely similar manner—the inquiry to stand over until next summer, as the cold season, during which the snakes are neither so lively nor so venomous, is close at hand.

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The London Medical Record.

WEDNESDAY, JUNE 2, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

A REMARKABLE CASE OF CATALEPSY AT THE COCHIN HOSPITAL, PARIS.

The case of catalepsy which has been under observation at this hospital, and which has been attended with sufficient publicity to allow the most satisfactory verification, cannot fail to afford interesting matter for thought to the physician as well as to the philosopher and historian. There is here no question of those facts which mysticism, fanaticism, or credulity, have often shrouded in mystery by attributing to them a miraculous or supernatural aspect, turned to profit according to the requirements of the moment; here there is only question of a pathological fact of an exclusively scientific nature. A patient, Marie Lecomte, who had come into Dr. Desprès' wards for a surgical affection, was soon afterwards attacked with dysmenorrhœa and uncontrollable vomitings; these complications were followed by nervous aphonia and suppression of the urinary excretion, then supplementary derivation of urine by vomitings. At the beginning of April the urinary function, which had long been suspended, was re-established, when on April 5 the patient fell into a lethargy; her breathing was imperceptible, her lips were pink, and her complexion rather roseate than pale. The trunk and limbs were in a complete state of relaxation; the pulse was normal; involuntary motion was quite abolished; the finger, placed through the half-opened mouth, on the glottis, the most sensitive point in the whole animal economy, neither provoked cough nor any other movement. M. Desprès, therefore, ordered that no food whatever should be given to the patient, even with the cannula used to feed paralytic patients, for fear that any attempts at giving nourishment should produce asphyxia. On April 6 the whole of the patient's muscles were tense and hard; they were contracted. It was cadaveric rigidity, *minus* death, for the pulse registered seventy pulsations, and the temperature of the body, taken with a thermometer placed under the armpits, measured 100.4° Fahr. At this time the patient was cataleptic, and the lethargy continued. This condition lasted six days, during which the patient remained apparently dead, and took no nourishment. During this attack the facts observed were, in the first place, muscular rigidity. The limbs were in a state of extension, the arms fixed tightly to the body gave the patient a resemblance to a mummy, it was necessary to use force to change the position of a limb. The limbs, hands and fingers remained for many hours in the very fantastic positions in which they were placed, and then gradually returned by jerks to the position whence they had been removed, and so remained in the same previous state of

contraction. There was not the slightest relaxation of the muscular contraction. The patient was seen every hour of the day and night and her condition was always the same. Many attempts were made to awaken the patient, such as pricking the most sensitive points, introducing rigid stems into the nostrils; but nothing had any effect, and the physicians who used these means were convinced that the abolition of the reflex movements was a certain fact.

M. Desprès again tried an experiment, tending to show that the muscular contraction was involuntary, as a conclusive proof. The muscles of the abdomen contracted like those of the rest of the body, and retained the form imparted to them. By forcibly applying the hand to the abdomen, the muscles were depressed, and the imprint of the hand remained visible during three minutes at least. These muscles remained contracted in the position imparted to them, a thing which could never be obtained by the effort of the will under any circumstances. On the seventh day of the crisis, the patient murmured some words and asked for something to drink; she drank a small quantity of coffee and broth, which she partly vomited some hours after. On the eighth day the patient fell back again into the cataleptic condition, the fresh crisis lasting forty hours. On the twelfth day, there was a fresh partial awakening. The patient called her neighbours, the house-surgeon, and the sister of the ward, without recognising the persons she called, and without answering the questions addressed to her; she drank some more broth and coffee, which she vomited the next day. She had a relapse on the thirteenth day, with catalepsy and lethargy, lasting sixteen hours. On the fourteenth day there was partial awakening; then catalepsy, lasting about eight hours in the night. In the intervals of the crisis the patient drank broth and coffee; but, as she afterwards vomited a portion of what she had taken, the abstinence had markedly emaciated her, and the small pulse, marking 100, showed that want of food was producing its usual effects. From that time the cataleptic crisis ceased. The patient remained in a state of dreamy wakefulness—that is to say, of somnambulism. She did not recognise anyone; but was yet able to take drink, and specially coffee and milk. On the seventeenth day a fresh symptom made its appearance. The patient during her dream had complained of not being able to see, and believed herself to be blind. As a matter of fact, a shining object placed before her eyes, and even the light of day, did not seem to be perceived by her. By automatic movements, against which all efforts were useless, she got her fingers to her eyes, and rubbed them with a sort of febrile excitement to such an extent that it was found necessary to tie her hands. Finally her sight returned to her on the eighteenth day; she recognised some people in the ward; and was able to take liquid food in a regular way. On the twenty-fifth day, the patient did not vomit any more, but retained the nourishment she took; she was entirely convalescent, and only complained of pains in her limbs, which she compared to those caused by fatigue. On the thirtieth day, she was able to get up, and on May 5 she was entirely cured.

Cases like that which has occurred at the Cochin Hospital are not new, but they have rarely been well observed. The remarkable researches of Professor Lasègue have made known the intermittent catalepsy of hysterical subjects, of ecstatic maniacs, and even

of healthy persons. It is a condition which may be provoked at will or which overtakes patients somewhat suddenly; as in the case of the judge quoted by Fehr,* who, having been insulted on the bench and having risen to reply, remained with outstretched arm and open mouth in a state of catalepsy which lasted more than a quarter of an hour.

The catalepsy complicated with somnambulism of hysterical patients, which appears in crises of an hour or longer, is now thoroughly well known; if it be not simulated, it is at least kept up by the will of the patient, or by a tendency which they could resist if they would. This kind of catalepsy is almost exclusively the melancholy privilege of women and priests.† Cataleptics, who have taken advantage of religious superstition, and who have sometimes been encouraged by the Roman Catholic Church, belong to that group of cases in which catalepsy is complicated with somnambulism or ecstasy. Louise Lateau, an account of whom will be found at pp. 128 and 158 of the MEDICAL RECORD, is a cataleptic of this kind. The cataleptic of the Cochin Hospital presents another variety of catalepsy; the attack begins with lethargic coma, and generalised muscular contraction comes on twenty-four hours afterwards. When the patient awakes she is somnambulant. The catalepsy, accompanied by lethargy, lasts six full days, during which there is apparent death. After the awakening there are three relapses, and the disorder only seems to yield bit by bit, after alternations of awakening and lethargy for several days. Here is a case of a disorder which is now-a-days called neurosis, and connected with the hysterical temperament, in which nothing of the marvellous has been observed. Marie Lecomte is a foundling, four and twenty years old, who had never left the Foundling Hospital and the farm where she had been boarded out. A quiet and well-conducted unmarried woman, she neither had exaggerated religious ideas nor vicious habits. Both before and after her attack, during the state of ecstasy and somnambulism which followed the six days of catalepsy, she held no continuous conversation, said no prayer, nor pronounced the name of God; but asked for ice or water to drink, called those of her hospital neighbours whom she knew best; in fact, spoke naturally according to her tastes and habits. As the Paris hospitals, open to everyone, are usually given in charge to medical men who are accustomed to sick people and see things from a positive point of view, in accordance with science, no attempt was made to find any supernatural utterances in the words spoken by the patient. The case of Marie Lecomte, which should be published with all its details, becomes a scientific fact, with regard to its authenticity far above the facts reported in the sixteenth, seventeenth, and even eighteenth centuries. At those epochs, in fact, the hysterical cataleptics or insane devotees passed for the elect of God, and the ecstatic or somnambulant cataleptics who did not speak of the Divinity were exorcised and even burned. As regards lethargy and abstinence from food, Marie Lecomte is not the most remarkable type. Some maniacs have remained equally long in the cataleptic and lethargic state; but the relation of the facts is not clear, and it is not recorded if the muscular system was contracted during the whole time the fit seemed

to last, as it was with Marie Lecomte during six whole days.

It may not be unadvisable here to reply to a question which may arise in some minds. It is whether, in presence of this state of apparent death, it may not have not have been possible that ignorant persons may have believed death to be real and have interred the patient. The answer is easy; the most inexperienced practitioner who might have felt the pulse could not have had one moment's doubt on the subject, and there is ground for believing that if, since the beginning of this century, a cataleptic patient, in a state of lethargy, has been interred alive, the medical man could never have looked at the supposed corpse. This is clearly reassuring, and it may be deduced from the case of Marie Lecomte that, notwithstanding the appearances of death, the signs of life were so decided, that the most ignorant of practitioners could not have felt for an instant the slightest doubt as to the vitality of the patient.

THIERSCH ON LISTER'S ANTISEPTIC METHOD, AND ON THE SUBSTITUTION OF SALICYLIC FOR CARBOLIC ACID.

(Concluded from page 318.)

The hospital, however, is not free from accidental traumatic diseases. Hospital gangrene occurred once, under rather remarkable circumstances. In the end of March, 1871, the newly opened Jacob's Hospital was supplied with new furniture. The old furniture was deposited in the court-yard of the hospital, and here it lay for a week, exposed to rain, snow and wind. One day it disappeared, and it was said that it had been put in a better place. A few days later, without any trace of importation, hospital gangrene in its worst form appeared in two barracks lying far apart. There had been no case of the disease in the old hospital since 1868. In each barrack is an unoccupied ground floor, through which air reaches the wards. In this Dr. Thiersch found the old furniture stored—body-linen and bed-clothes, night-stools, mattresses, etc.—as if for an experiment with infection on a large scale. Fortunately only two cases occurred, neither of which was fatal.

Erysipelas has occurred sometimes more, sometimes less, severely. In 1873 Dr. Thiersch had seventy-five cases among 1,902 patients; in 1874, among 1,921 patients, the number of cases of erysipelas was not accurately known, but it was distinctly less than in the previous year. In both years, antiseptic treatment made no difference. As has been recognised on all sides, antiseptic treatment has no power to prevent the occurrence of erysipelas; it occurs under the use both of carbolic and of salicylic acid; sometimes frequently, sometimes rarely; sometimes in a severe, and sometimes in a mild form.

While no difference from the former conditions of the hospital has been observed as regards hospital gangrene and erysipelas, the case is different with pyæmia. When he first came to Leipzig in 1867, Dr. Thiersch found the disease remarkably prevalent in the old hospital. In the new hospital there has been a marked improvement, especially since Lister's method has been rigorously carried out. In 1873 Dr. Thiersch had ten cases of pyæmia among 132 deaths; of these four were imported two broke out

* Fehr, *Hiera picra, seu de Absinthia*, 1667.

† Rondelet speaks of a priest who fell into ecstatic catalepsy when the history of the Passion was read. (*Methodus cur. morb.*, ed. 1583, lib. i. cap. 20.)

in the hospital, and the remaining four occurred after amputation of the femur, amputation of the humerus, removal of the index finger under Lister's treatment, and in a case of severe injury of the thigh, laying bare the bone that was treated by open dressing. In 1874, out of 105 deaths, five were from pyæmia; in four of these the disease broke out in the hospital, all the cases being under Lister's treatment. The cases were, complicated fracture of the skull, severe complicated fracture of the leg, with laceration of the soft parts in the popliteal space, severe complicated fracture of both legs, and amputation of the humerus. The last case only occurred in the ten months specially embodied in the report.

Dr. Thiersch coincides in opinion with those who regard Lister's method of treating wounds as affording a fairly secure protection against pyæmic infection. Fresh wounds, especially operation-wounds, generally heal without fever, unless some extraordinary injurious influence acts on them; the plan favours healing by the first intention; if the secretions of the wound be retained, not much disturbance is produced. Suppurative and ichorous discharges generally undergo a change for the better in a few days; necrosis of sawn surfaces of bone and of portions of the skull that have been laid bare occurs rarely; and, thanks to the aseptic course, and the good properties of Lister's ligature, secondary arterial bleeding is rare.

Dr. Thiersch regards the antiseptic action of the salicylic dressing as certain as that of Lister's carbolic dressing. The salicylic acid also possesses two advantages; it is less irritating, and is not volatile. It can thus be incorporated with the dressing in greater quantity and remain for a longer time in contact with it, without endangering the result. Another advantage of salicylic acid is that it is inodorous.

Dr. Thiersch gives the following directions for the use of salicylic acid for the guidance of those who have not leisure to make experiments for themselves. For dressing with salicylic acid there should be kept at hand a supply of salicylic water—a solution of one part in 300; and of salicylic cotton, containing respectively 3 and 10 per cent. Dr. Blaser, the apothecary of the Jacob's Hospital, makes the preparations in the following way. *a.* For 3 per cent. salicylic cotton, 750 grammes are dissolved in 7,500 grammes of spirit of spec. grav. 0.830; the solution is then diluted with 150 litres of water, at a temperature from 156° to 176° Fahr.; and the mixture is used to saturate twenty-five kilogrammes of cotton-wadding freed from fatty matter. *b.* The 10 per cent. salicylic cotton is made by dissolving one kilogramme of salicylic acid in 10,000 grammes of spirit of spec. grav. 0.830, adding sixty litres of warm water (as above), and saturating with the mixture ten kilogrammes of cotton-wool. The saturation of the cotton is best done in a large shallow wooden tub; and it is best to use only a small quantity of cotton-wool (two or three kilogrammes) at one time, as in only this way an equal distribution of the salicylic acid is possible. The proceeding occupies only a short time.

In charging the cotton-wool with the warm solutions of salicylic acid, it is introduced in layers, moderate pressure being applied to each layer, so that it may be completely saturated before another is introduced. After the proper quantity of cotton-wool has been introduced and is perfectly saturated, the whole is inverted, and allowed to stand for a

short time (about ten minutes), so that the solution may be diffused as equally as possible. The cotton-wool is then laid in small heaps to cool, during which process the salicylic acid crystallises; and it is then allowed to dry in a moderately warm place for about twelve hours. It is not advisable to hang it up, as, in the process of draining, the equal distribution of the acid is disturbed. Such are the directions given. It is not to be expected, however, that the salicylic acid will crystallise in equal amount in all parts of the wadding; and, even after drying, the distribution of the acid may be rendered unequal by handling. Thus, in many parts there will be less than 3 per cent., in others more. An addition of 1 per cent. does no harm; but if in the 3 per cent. cotton-wool there be a deficiency of 1 per cent., or in the 10 per cent. cotton of 3 per cent., the deficiency should be made up from portions containing an excess.

As has been already observed, the salicylic cotton-wool does not allow the passage of the discharges of the wound so readily as Lister's carbolic gauze; and hence, when a dry salicylic acid dressing has remained for a week or two, pus is generally found in various quantities between it and the wound. Dr. Thiersch has made some experiments in order to find a more permeable material for dressing than cotton-wool. Hemp, flax, sawdust, etc., did not answer the purpose. His attention was then called by Dr. Von Mosengeil to jute; and, having obtained a supply of clean jute from the manufactory at Bonn, he charged it with 3 per cent. of salicylic acid, adding also 20 per cent. of glycerine to prevent the acid from falling off in dust. He introduced 2,500 grammes of jute into a solution of 75 grammes of salicylic acid in 500 grammes of glycerine and 4,500 grammes of water, at a temperature of 158° to 176° Fahr. In this way he obtained a soft material, resembling flax, giving off but little dust, which, when left on a wound for nine days, completely absorbed thick pus, which became equally diffused through it. At the same time, the dressing remained inodorous, and gave in every part the reaction of salicylic acid on being tested with chloride of iron. On account of the equal distribution of the discharges from the wound in the jute dressing, it is not necessary to apply a strongly charged layer internally; a four per cent. dressing is sufficient. Dr. Thiersch believes that jute will supersede cotton as a dressing for large suppurating wounds, although it is not to be compared with the latter as regards softness. Some comparative statements of the cost are given, to show that the salicylic acid dressing, especially when jute is used, is much cheaper than the carbolic acid dressing: the proportions, calculated for a case of amputation of the thigh, being:—Lister's dressing, 2.35 *mark*; dry salicylic dressing, 1.52 *mark*; dry salicylised jute dressing, 0.92 *mark*.

The cheapest of all is the jute dressing; and it is the more so, because it can be allowed to remain a longer time on the wound without danger of an accumulation of the discharges beneath it. Dr. Thiersch's experiments with the jute dressing are as yet, however, not sufficiently numerous to enable him to speak with absolute certainty about it. He does not think that it is of much importance whether a spray of carbolic acid (1 in 50 of water) or of salicylic acid (1 in 300) be used. Many give carbolic acid the preference, because it does not cause coughing and sneezing, and is readily removed from

the clothes by evaporation. Dr. Thiersch prefers salicylic acid, because it irritates the wound less. The sponges are kept in a solution of carbolic acid (1 in 20 of water); and, after being used, are washed with much warm water and again placed in the carbolic acid solution. Salicylic acid solution may also be used.

Lister's 'protective' is regarded as unnecessary, as the salicylic acid dressing irritates less than the carbolic acid; so also the macintosh, which Lister uses. To favour the escape of secretions from the wound, and at the same time to prevent the dry salicylic dressing from adhering, a piece of fenestrated gutta-percha membrane, or of waxed taffetas, is placed next the wound; or a piece of Lister's antiseptic gauze may be used for the same purpose.

In operating, chloroform is first given; and, if possible, Esmarch's apparatus for the prevention of hæmorrhage is applied. The part to be operated on is then shaved, if necessary, and cleaned by means of soap, water, spirit, and oil of turpentine, and is then rubbed by means of a nail-brush with a solution of salicylic water or carbolised water (1 in 20.) The operator's hands being disinfected and the spray-apparatus ready, the operation may be begun.

In amputation of a limb, such as the thigh, the arteries are secured by catgut ligature, the ends of which are cut off short. All bleeding having been arrested, the edges of the wound are accurately fitted together, and united by disinfected silk suture at both the most dependent angles. Solution of salicylic acid is injected into the wound at each corner; and at each angle a drainage-tube with several lateral openings is inserted as far as the bone, the outer projecting end being cut off. After again washing the wound with salicylic acid until the fluid escapes nearly pure through the drainage-tubes, the wound is covered along its whole edge with a strip of fenestrated gutta-percha or carbolised gauze three finger-breadths wide; over this is laid salicylic cotton-wool of the stronger form to the thickness of one finger, and of the weaker to that of two fingers, the whole reaching a hand-breadth beyond the edge of the wound. These layers of cotton-wool are then smoothly and equally covered with gauze. The application of the antiseptic spray is stopped as soon as the wound is covered with the salicylised cotton. If the temperature afterwards rise to about 101° Fahr. it is advisable to examine the wound, especially if the patient complain of pain in it. If there be no pain or fever, the dressing is left until the removal of the drainage-tubes appears necessary. Any spots of secretion that appear on the surface are covered with salicylic cotton. If all go on well, the dressings may be changed for the first time at the end of eight or ten days, the drainage-tubes being then removed; and the second dressing may remain until healing has taken place. If there be moderate retention of the discharge, the drainage-tubes are removed and new ones are introduced, and the wound is washed with salicylic water injected through them. If the wound becomes filled with coagula or if signs of sloughing appear, Dr. Thiersch opens the middle suture and applies moist dressing, with irrigation. If the arteries have undergone calcareous change, the wound is left open and covered with a thin layer of moistened weaker salicylic cotton-wool, and is irrigated with solution of salicylic acid.

A similar course is followed in resections of large joints, removal of tumours, etc.; provision being made by the introduction of drainage-tubes for the

escape of discharge at the most dependent part of the wound.

In large open wounds, Dr. Thiersch lays a thin layer of salicylic cotton-wool or antiseptic gauze over them, so that the irrigation may reach every part of the wound. The irrigation is effected by means of Esmarch's irrigator; or, if this be not at hand, the solution must be poured from time to time from a vessel. The skin around is protected from maceration by being rubbed with palm-oil. If abscess or retention-fever appear, the dressing is removed under the antiseptic spray, and drainage applied according to circumstances. When healthy granulations have appeared, the dry salicylic dressing may be used. The simultaneous use of ice-bags is often very useful.

In cases where there is advancing suppuration with insufficient escape of pus, generally attended with high fever, the suppurating cavity is washed with solution of salicylic acid; the necessary openings are then made, drainage-tubes are introduced, the part is placed in a proper position, and irrigated with salicylic acid. After a time, the dry dressing is applied.

In small or in congestion abscesses, incision and a drainage-tube are generally sufficient. In large deeply seated abscesses, especially if portions of sloughy tissue be present, a large opening is made and the part is washed with solution of salicylic acid; and then according to circumstances, one or more openings are made at the deepest and most dependent parts, so as to allow complete drainage. Dr. Thiersch thinks that the best plan is to introduce through each opening a drainage-tube, reaching as far as the centre of the cavity. The part may be washed with salicylic acid so long as the walls of the cavity remain ununited.

In concluding his paper, Dr. Thiersch considers the question whether salicylic acid is destined to become useful in military surgery. In the early period after a battle, the trouble and care attending the application of Lister's antiseptic render it impracticable, whether carbolic acid or salicylic acid be used. But, even though Lister's plan be not rigorously carried out, it may be advisable to use salicylised cotton in place of charpie, and to irrigate or moisten open wounds with solution of salicylic acid. Afterwards, when the lazzarets have been brought into order—and especially if salicylic acid should prove to be a prophylactic against hospital gangrene—the use of salicylic acid will facilitate the use of Lister's method in military surgery.

COULAND ON THE CONNECTION OF ERYTHEMA AND RHEUMATISM.

The *Archives Générales de Médecine* for January, 1875, contains ten cases of erythema papulatum occurring in the course of acute rheumatism, reported by Dr. C. Couland.

1. Male, aged twenty-nine. First attack of rheumatism. In April, 1874, he had an eruption apparently erythematous. June 2. He was admitted with an affection of the knees and ankles, fever, and an eruption on the trunk and limbs of minute injected points, arranged in circles and patches, fading on pressure, bright in colour, and unattended with itching or tenderness. June 3. Systolic bruit, probably pericardial. June 8. The eruption was nearly gone. July 10. He had left pleurisy with effusion:

joints almost well. July 17. Convalescent. July 20. He went out with no trace of his illness but bronchitis.

2. Male, aged twenty-three. First attack two years ago, in knees; it became chronic, and was accompanied by an 'erythematous' eruption, followed by desquamation. Present attack in knees and shoulders with slight pyrexia. Eruption appeared on the eleventh day of illness over the trunk and limbs like the last, but of a less vivid colour—approaching that of measles. A week later the eruption had disappeared without desquamation; the articular pains had diminished, and there was a systolic basic bruit, probably aortic.

3. Male, aged twenty-six. An uncle had had several attacks of rheumatism, and his fingers were now distorted (? osteoarthritis). Another uncle, said to be gouty, died, at forty-six, of 'pulmonary apoplexy.' The patient was first attacked in April, 1871, with pains in the knees and ankles, followed by a papular eruption on both legs, with three spots recognised at the time as erythema nodosum. A few days later he became suddenly anasarctous with urine containing blood and albumen, from which he recovered completely. In January, 1874, he had a slight attack of rheumatism, and a more severe one last May, which was not completely cured for six months. The heart was unaffected.

4. Male, aged twenty-one. June 2, 1873, attacked with febrile symptoms, followed in a week by erythematous patches on the hands and face, some of which assumed the form of erythema iris. On the 19th he had pains in the knees, and feet without redness or swelling; slight pleurisy. June 22. He had diarrhoea. On the 30th, he was well.

5. Male, aged nineteen. Ill a week with slight pyrexia and pains in the limbs. He had a morbilliform eruption on the face, with coryza and bronchitis. Next day (May 18, 1874) the eruption had spread to the body and legs, and caused excessive inflammatory oedema of the prepuce and scrotum. There were a soft apex bruit and a pericardial rub. May 19. The eruption was fading: he had albuminuria. Recovery took place with desquamation.

6. Female, aged twenty-four. Pregnant. Suffered from rheumatic fever at seven years old. A diffuse erythematous eruption, with oedema, appeared on the hands and cheeks, November 9, 1874. Next day it became more papular, with pains in several joints. By the 13th it had disappeared, and desquamation followed.

7. Female, aged seventeen. Father rheumatic. She had chorea at fourteen, with subacute rheumatism. January 14, 1874. She had an eruption on the elbows and wrists like a papular erythema, patches on both shins (E. nodosum?), and pains in joints, with a slight basic systolic bruit.

8. Male, aged twenty-nine. March 24, 1874. Inflammation of right knee, with papular erythema of both legs, and a systolic murmur at the apex of the heart. The eruption disappeared in six days, and the synovitis in a fortnight.

9. Female, aged twenty-one. She was perfectly well until the end of September, 1874. She was then feverish and poorly for a week, and her legs swelled, and in front of each tibia appeared small painful red elevations, which left behind them a bluish stain. On October 27 there was a fresh eruption of erythema accompanied by shivering, dyspnoea, and severe pain in the right shoulder and side, for which a blister was applied. She was then

admitted to La Charité, with dulness, bronchial breathing and ægophony of the right side, and a blowing systolic apex-bruit. By November 24 the eruption had disappeared, and the pleuritic effusion was absorbed, leaving a rub audible. A few days later she went out feeling perfectly well, but with the mitral bruit audible.

10. Female, aged twenty-six. Her father was gouty. She had suffered from scarlatina and enterica. The first attack of rheumatism occurred at twenty-three; it lasted six weeks, and was accompanied by erythema nodosum of both shins. A second attack of both affections occurred about a year afterwards, preceded by sore throat. She had a third attack of rheumatism when the case was reported, beginning with jaundice and angina, and accompanied by an eruption of papular erythema on the face, back, hands, and legs. The 'papules' were as large as half a franc, and itched very much, though they were also painful and tender to the touch. At the same time there were nightly shiverings, pyrexia, headache, and a furred tongue; general muscular pains were replaced by ordinary synovitis of the hand, knee, and elbow, and when this disappeared, the eruption had passed through a violet tint to the stage of desquamation. A few days after dismissal the patient came in again with a severe relapse of rheumatic fever, slight erythema of the legs and one arm, and acute endocarditis of both aortic and mitral valves.

Dr. Couland adds to this instructive series of cases the not unnecessary assurance that he has excluded cases of gout, because he believes that the identifications under the name 'arthritides' of gouty and rheumatic eruptions 'is contrary to the teaching of experience, and exceedingly inconvenient.'

In the same journal for the present month (p. 486), is a case of one of these curious erythematous eruptions with desquamation, which sometimes accompany articular rheumatism, described by the reporter, M. Percheron, as 'Dermatite exfoliatrice généralisée.'

P. H. PYE-SMITH, M.D.

ANATOMY AND PHYSIOLOGY.

CALORI ON ANOMALIES OF THE INFRAORBITAL CANAL AND NERVE.—The *Annali Universali de Medicina e Chirurgia*, for April, contains an abstract of a memoir by Professor Luigi Calori on the anomalies of the infraorbital canal and nerve, published at Bologna in 1874. The author confirms the observations of Wenzel Gruber, and adds some original remarks. The following are the anomalies observed in the infraorbital canal.

1. The conversion of the canal into a hollow cylinder or tube running within the antrum of Highmore as far as the middle of the orbital plane, where it ends in the infraorbital groove. The tube has on its inner side an accessory cavity of the antrum, a sort of diverticulum. This formation was met with in a fifth of the cases examined, and is analogous to the tubular infraorbital canal of the horse and other mammalia.

2. The existence of several infraorbital foramina or canals, arising either from subdivision of the ordinary canal by a septum, or from the presence of several granules opening on the face by distinct orifices, more or less distinct from the principal foramen (supernumerary canals of Gruber). But

there are also other infraorbital canals having no connection with the ordinary canal, and on the face or on the base of the orbit, or on the posterior surface of the superior maxilla; to these Gruber has given the name of anomalous infraorbital canals.

3. The infraorbital canal may be double. It is in very rare instances divided by a septum through its whole length; while in other cases the canal is bifurcated at a variable distance from its anterior extremity. Of the two trunks or canals, the outer one is always the continuation of the ordinary canal, and the inner one is supernumerary. This double arrangement has been long known, and has received the name of bifid infraorbital canal. The supernumerary canal always opens on the face on the inner side of the ordinary infraorbital foramen: the aperture may be on the same level as the ordinary foramen, but more frequently it is a little higher or lower, and is placed at a distance varying from one-fifth to half-an-inch, according to Calori's observations.

4. With regard to the frequency of the anomalies, Gruber found the infraorbital canal bifid in 116 out of 1,000 skulls, and Calori in 100 out of 1,000.

With regard to the infraorbital nerve, Dr. Calori says that he has, in three cases, while examining the second branch of the fifth pair, found passing out of a special canal, situated to the inner side of the ordinary infraorbital foramen at a distance of about one-third of an inch, a nervous twig of middle size which was distributed to the lower eyelid and the skin of the nose. This anomalous twig arose from the inner side of the trunk of the infraorbital nerve, at a distance of a quarter to a third of an inch from the projecting lower margin of the orbit, and either close to or a little behind the origin of the superior anterior alveolar nerve. In one case Dr. Calori observed two twigs escaping from two foramina, one above and the other below, lying to the inner side of the ordinary infraorbital foramen; the upper one was at two-fifths of an inch distant, the lower one-third. In this case also the twigs arose from the trunk of the infraorbital nerve, from one-fifth to a quarter of an inch from the margin of the orbit; the orifice was single, and the twig entered a canal which was supernumerary to the ordinary canal, and which bifurcated before reaching the face. The upper twig was distributed to the lower eyelid and the nose, the lower one to the nose alone.

In concluding his memoir, Dr. Calori comments on the practical utility of such anatomical researches in indicating the course which should guide the surgeon in dividing the infraorbital nerve.

A. HENRY, M.D.

OTT ON THE PHYSIOLOGICAL ACTION OF THEBAIA.—This has been studied by Dr. Ott in Professor Bowditch's laboratory at the Harvard Medical School. His conclusions are, in the main, confirmatory of those arrived at by previous inquirers. After furnishing a summary of existing knowledge on the subject, he describes ten selected experiments performed on frogs, pigeons, and rabbits, with Merck's thebaia, dissolved with the aid of hydrochloric acid, the solution being subsequently neutralised. He found that '0007 gramme ('01 grain) of the alkaloid produced tetanus in the frog, followed by recovery; '01 gramme ('015 grain) administered subcutaneously to a pigeon caused its death by tetanus in fifteen minutes. The tetanic spasm is of spinal, not of cerebral, origin; the sensory and motor nerves,

and the voluntary muscles, are not in any way affected by the poison. In rabbits previously curarised, thebaia caused some quickening of the pulse, and a marked rise of blood-pressure; the former phenomenon being probably due, not to paralysis of the inhibitory apparatus, but to stimulation of the cardiac ganglia; the latter to an action on the vaso-motor centre, since it was prevented by division of the spinal cord between the atlas and the occiput.

E. BUCHANAN BAXTER, M.D.

FALCK ON THE EXCRETION OF UREA IN A HUNGERED DOG.—F. A. Falck, *Habilitationschrift*, Marburg, pp. 22, 1874 (abstract in *Centralblatt für die Med. Wissenschaften*, no. 45, 1874) withheld from a well-nourished bitch, of 8,960 grammes weight, all solid and fluid food, and estimated every six hours, till the death of the animal, the quantity of urine removed by the catheter, its specific gravity, its colour, and the quantity of urea. The animal was weighed every six hours and the temperature taken. The author found that with continued inanition the body-weight gradually suffered less loss, that from the second hunger-day onwards the daily decrease in weight (reckoned as percentage of the body-weight) remained tolerably equal till death.

The animal died when it had lost 48·08 per cent. of its weight. The urine had always an acid reaction, the colour was reddish-yellow, and had a mean specific gravity of 1·051. During the first hunger-days the quantity of urea excreted sank considerably; afterwards it increased, so that for several days more urea was excreted than on the second hunger-day; during the last days of life the quantity of urea excreted was small. The author explains this change thus: that at first the fat was preferably oxydised for the sustenance of the temperature necessary for life, and, later, the albuminous bodies. The final diminution in the excretion of urea corresponds in time with the diminution in the temperature. From this it appears that the quantity of fat in the body of an organism totally deprived of food limits essentially the duration of life.

KRENCHEL ON THE CONSEQUENCES OF SECTION OF THE OPTIC NERVE IN THE FROG.—W. Krenchel (*Von Gräfe's Archiv*, 1874) says that Berlin found that after section of the optic nerve in the frog, degeneration of the nerve-fibres to their most extreme intracular terminations occurred. Berlin suggested that this was not due merely to the section of the nerves, but to the division of the blood-vessels by his method of operating. The author confirms Berlin's results completely, and shows further, by intracranial section (whereby the vessels are uninjured), the correctness of the above assumption. Krenchel found that in frogs, six months after the operation, no change in the eye either macroscopically or microscopically was to be detected; on the contrary, he found that several times in the almost always completely divided optic nerve, degeneration of the nerve-fibres for one to two millimetres from the point of section had taken place. It is very remarkable that the mobility of the pupil for the action of light is not in the least diminished by intracranial section of the optic nerve.

WALB ON TRAUMATIC KERATITIS.—Walb (*Centralblatt*, no. 7, 1875) employed the method of Lieberkühn, viz., the injection of a freshly prepared neutral solution of carmine into the cornea of the rabbit. This causes little or no disturbance, and if

the cornea be examined in from ten to eleven days, the corneal corpuscles are found splendidly coloured and lying in a perfectly colourless ground-substance. Afterwards the cornea can be irritated by chloride of zinc, nitrate of silver, etc., and the changes in the corpuscles, etc., noted. WM. STIRLING, D.Sc., M.B.

DEZAUTIÈRE ON HEART-SOUNDS.—M. Dezauière laid before the Paris Academy of Sciences, at their meeting of April 13, a note in which he says (*Bulletin de Thérapeutique*, April 30) that the sounds of the heart are produced by the rapid and violent contraction of the ventricles, each rapid and violent contraction producing a sound. If the expression may be allowed, it is a sound *à priori* and not *à posteriori*, primary, and not consecutive as is generally believed. The structure of the auricles does not allow contraction; besides, contraction of the auricles is not necessary, the blood descends naturally into the ventricles by its own weight. The contraction of the auricles would be dangerous, inasmuch as it might drive back the blood into the venæ cavæ and the pulmonary veins. The second impulse is produced by the contraction of the right ventricle.

PATHOLOGY.

KOSTER ON THE PATHOGENY OF ENDARTERITIS.—Koster's observations (*Verslagen en Mededeelingen der Koninklijke Academie van Wetenschappen*, 1874) were chiefly designed to investigate the origin of the numerous round or lymphoid cells, which all observers have found in the thickened inner coat of an artery affected with chronic endarteritis, or the atheromatous process. These were unhesitatingly set down by Virchow as the result of a proliferative process in the connective tissue cells of the inner coat, and this explanation was generally accepted, although it was difficult to show precisely what elements of the normal arterial wall were thus concerned. Moreover, since Cohnheim's observations on cell-migration in inflammation, it became just as natural to suppose that they might be leucocytes escaped from the circulating blood; a hypothesis which, first casually thrown out by Traube, has been adopted by Rindfleisch and others; and to it Koster decidedly commits himself.

His observations on the normal anatomy of the inner membrane led him to the conclusion that all arteries, even the human aorta, possess a complete continuous endothelial lining, in which are no stomata. The large branched stellate connective tissue cells described by Langhans, and seen in morbid (fatty) conditions by numerous pathologists, are not a normal constituent of the inner coat till after ten years of age; but they increase with the thickening of the inner coat, which takes place in old age, and in some morbid conditions constitute several layers.

Since these are the connective tissue elements of the inner coat, it becomes important to inquire whether they are the progenitors of the lymphoid cells above spoken of; but Koster, agreeing with Götze, fails to find any genetic connection between the two classes of elements, the stellate cells being unaltered, except by fatty degeneration, even when the lymphoid cells are most abundant; and the same holds with respect to the nuclei which are also sometimes abundantly present. He is thus driven to regard the round cells and nuclei as emigrant leuco-

cytes from the vessels, though he does not deny the possibility of proliferation occurring in such elements. In one point only, he qualifies the view already expressed by other pathologists; viz., he believes that the penetration of the wall by the corpuscles only takes place when the inner coat is already altered by fatty degeneration or hypertrophy. Further, this immigration of leucocytes, though secondary to the degeneration of the wall, is the chief factor in producing an actually atheromatous condition, and especially what was formerly called an atheromatous abscess, since the accumulation of such cells leads to 'necrobiotic decay.' These conclusions are supported by observations in a case of leukæmia, by an observation previously made by others that the young or lymphoid cells are most abundant in the superficial layers of the thickened lining membrane, and by a singular case recorded by Virchow, where an atheromatous cavity was found to be filled not with the usual degenerated materials, but with apparently young or newly formed cells, hardly to be distinguished from pus.

Koster holds with Virchow, that there is a simple fatty degeneration without hypertrophy; but thinks the more strictly hypertrophic form leading to sclerosis and deformity of the vessel, is only an extreme case of the chronic inflammatory process. The increase in thickness of the inner coat is due in great part to increase of its intercellular substance as well as to the formation of new stellate cells. A complete endothelium could always in recent specimens be found covering the sclerotic patches.

J. F. PAYNE, M.B.

FELTZ AND E. RITTER ON LIGATURE OF THE BILE-DUCT, AND ON THE BLOOD IN DIFFUSE HEPATITIS.—Messrs. Feltz and Ritter show, in a note laid before the Académie des Sciences, April 12 (*Bulletin Général de Thérapeutique*, April 30), from a series of nine experiments of ligature of the bile-duct, that the blood is more or less altered, in consequence of the resorption of the biliary salts and of their shorter or longer retention in the blood. The blood-corpuscles become diffuent; the hæmoglobine transudes, and even crystallises; fatty granules in considerable quantity, and crystals of cholestérine, accumulate in the serum. The change in the blood varies with the amount of biliary acid, shown by chemical analysis to be present in it. The jaundice does not depend either on biliary salts or on their transformation, but on the retention of the colouring matter. The absorption of the biliary salts has a limit, for the biliary secretion itself diminishes so soon as the dilatation of the secretory canals and canaliculi becomes considerable, and the epithelium of these tubules falls into a state of granulo-fatty degeneration, under the influence of the great increase of pressure within them. This modification of the secretion explains the rarity of nervous and hæmorrhagic accidents in hepatogenous icterus. In this respect, there is a great difference between acholic and poly-cholic icterus.

The authors have in one instance been able to produce the serious incidents of diffused hepatitis by artificial retention of the bile, and in this case they found an amount of biliary salts varying from ten to eleven thousandths in the blood. Taking clinical ground and comparing the pathological forms of icterus with those they have been able to produce artificially, either by biliary injections or the ligature of the

common bile-duct, the authors admit that there occurs in every icterus a moment in which the presence of biliary salts in the blood cannot be doubted, and that the nervous or hæmorrhagic accidents of diffused hepatitis depend in a great measure on the proportion of biliary salts accumulated in the blood. The general conclusion of all their experimental and clinical data is to establish unquestionably that the absorption of the biliary salts plays the principal part in all cases of diffuse hepatitis. Blood-poisoning is the characteristic of all so-called bilious states, whatever may be the multiple lesions of the splanchnic organs which give rise to or which depend on them.

In the future, morphological and chemical modifications of the blood should be sought for in diffuse hepatitis, and even in yellow fever. MM. Feltz and Ritter are entirely convinced that by this method it will eventually be rigorously demonstrated that every malignant bilious condition, of whatever nature, originates in the accumulation in the blood of a too considerable quantity of biliary salts, which act as destroyers of the red blood-corpuscles.

MEDICINE.

MOSLER ON ARTERIAL TRANSFUSION OF DE-FIBRINATED HUMAN BLOOD AFTER HÆMORRHAGE FROM THE BOWEL IN TYPHOID FEVER.—No. 20 of the *Berliner Klinische Wochenschrift* (May 17, 1875), contains a paper by Professor Fr. Mosler, of Greifswald, from which we abstract the following. He remarks that the general opinion as to the extreme gravity of intestinal hæmorrhage in enteric fever is confirmed by experience. If the blood flow rapidly, it is dark-red, syrupy, or clotted; but if it have remained some time in the bowel before being discharged, it is of a chocolate-brown or greenish-black [in the former case it is sometimes very florid and thin. A girl with typhoid fever, in the London Hospital, passed blood of a bright pink colour in the stools.—*Rep.*]. More or less collapse, often fatal, supervenes. The subjoined case was extremely severe. Mrs. G. L., aged thirty-seven, mother of six children, had previously suffered from chronic bowel and uterine complaints, and was attacked with typhoid fever in November, 1874. Under quinine, acids, and cold baths, her temperature became almost normal. On Thursday, November 31 [*sic*], Dr. Mosler was consulted on account of a sudden and unexpected pain in the ileo-cæcal region. He found the pulse 120, and small; temperature 108°7' at 5 P.M. Abdomen, especially where painful, extremely tympanitic. No lung complication. Thin, copious, liquid stools. As she had taken stewed whortleberries, the colour was not decisive. Local peritonitis was diagnosed. [Ice, externally; quinine in large doses, and enemata containing salicylic acid.] These means procured some amelioration of symptoms. December 5: morning temperature, 101°8' Fahr. December 8, in the morning, patient passed nearly a pint of dark blood from the bowel; in the evening still more. Altogether more than a quart was said to be lost. Next day she was in a state of extreme collapse, drowsy, with cold extremities. Seven-drop doses of liquor ferri perchloridi were given with wine and strong broth, and camphorated oil was subcutaneously injected at intervals of half an hour. In spite of these means, with warmth,

mustard, etc., the collapse deepened, and every one was surprised that she survived the night. Professor Mosler and Dr. Altdörfer resolved on transfusion, and asked the aid of Dr. Hüter. Meanwhile, she was given champagne, and the injection of camphorated oil was continued, for this seemed to do more good than anything else. The transfusion was commenced about 3 P.M. on the 10th. It was thought that transfusion into the veins would be dangerous in the weak state of her heart; probably paresis of heart, coagulation of blood, and death would occur, as Professor Möslér has seen in venous transfusion in collapse after diphtheria. [Möslér: 'Ueber Collapsus nach Diphtherie, vorgetragen in der Section für innere Medicin der Leipziger Naturforscher-Versammlung,' *Archiv der Heilkunde*, 1873.] Dr. Mosler took a pound and a half of blood from the left median vein of a strong labourer, whipped it and filtered in a water-bath at 104° Fahr.; Dr. Hüter, assisted by Dr. Wenzel, laying bare the very thin radial artery of the patient's right arm, opening it, and inserting the cannula, during the same time. Very cautiously eight syringefuls (of about twenty grammes [3vj.] each, were injected, about six ounces in all. The operation took about twenty-five minutes.

Except reddening of the forearm, there was very little immediate effect, but in a very short time the pulse became perceptible at the left wrist, and the impulse of the heart could be felt. After about half an hour there was a severe rigor, lasting about eight minutes. Champagne was given freely, and from this time her general condition rapidly improved. Her face became more natural, the skin began to perspire, and she slept the next and following nights. Next morning her pulse was 92, the temperature 101°1' Fahr. From this date, except for a carbuncle in the neck, recovery was uninterrupted. The wound in the arm healed well, and there was no return of hæmorrhage from the bowel. This case is the same reported in Dr. Kalusche's dissertation.

The other cases known to Dr. Mosler are: 1. One mentioned by Dr. A. C. W. C. Berns (*Beiträge zur Transfusionslehre*, Freiburg, Bd. I., Fr. Wagner, 1874, p. 27), in which Drs. Kussmaul and Czerny transfused 150 grammes (about four and a half ounces) of defibrinated blood, as a *dernier ressort* after hæmorrhage from the bowel in a typhoid fever case at Freiburg. There was a severe rigor half an hour later. In two hours there was a fresh, florid, and copious hæmorrhage from the bowel, under which the patient sank. During the transfusion borborygmi, indicating peristaltic action, were clearly heard—due to sudden overfilling of vessels? 2. The second case is Küster's (Langenbeck's *Archiv*, vol. xvii. 3 Heft. p. 385). About four and a half ounces of lamb's blood was transfused into the left radial artery of a man, aged twenty-six, who was moribund after intestinal hæmorrhage, in the course of typhoid fever, with very high temperature. The operation appeared to produce slight improvement, but four hours after he died exhausted. In neither of these cases was there any *post mortem* examination.

The third case was in a female patient of Dr. Havemann, of Sülz, aged eighteen years. The hæmorrhage occurred in the second week of enteric fever, and she is said to have lost three pounds of blood. She was so collapsed two days afterwards that little hope of success was entertained. Transfusion of defibrinated human blood was done by means of a common pewter syringe holding about three ounces. Five or six ounces in all were injected into the left

radial artery at the wrist. There was no subsequent rigor, the collapse all vanished, and recovery was uninterrupted. [*Zur Charakteristik der Transfusion*, von A. Evers, Rostock. *Deutsche Klinik*, 1870, p. 72.]

There are other cases in which transfusion has been done simply for anæmia after typhoid fever, without any bleeding from the bowel having occurred. These are not included in this list. Only four, including the one detailed above, are known to Professor Mosler. Of these, two only had a favourable termination. Of the unfavourable ones, the names of the operators are guarantees for the mechanical details. The renewed hæmorrhage which proved fatal is an accident no skill can guard against. In Küster's case the patient was already too exhausted. But according to Landois' researches [*Centralblatt für die Medicinischen Wissenschaften*, 1875, no. 1], it would seem that lamb's blood is not so good as human—it may even be feared that it is positively injurious. After experiments with various kinds of blood Landois finds, besides pyrexia, characteristic symptoms, which generally begin very soon after the operation, after a few hours more vanish, and, if the quantity of blood be small, do little permanent harm, though there may be more serious and less transient sequels. Landois, by repeated experiments, satisfied himself that the blood-corpuscles of one animal are broken up in the body of another, and that the masses of stroma caused by their destruction may cause coagulation in the blood-vessels through which they circulate; and he believes that the phenomena produced are owing to the blocking of capillaries and small vessels, and depend on the extent to which this occurs, this blocking being due to the conglomeration of the 'foreign' blood-corpuscles and fibrinous stroma. Possibly the 'native' blood-corpuscle may assist in the blocking. One of Landois' results is of special interest as regards transfusion after intestinal hæmorrhage; he has observed that transfusion of heterogenous blood causes violent peristaltic action, in the whole of the intestinal tract, with vomiting and purging. The bladder, genitals, skin, and muscles are also affected. In the nervous system the disturbed circulation produces excitement, restlessness, irritation of important centres, and, at a later date, symptoms of depression, paralysis, and coma. He asserts also that the certain destruction of the corpuscles of other animals when their blood is introduced into human bodies, forbids us to believe that the functions of these corpuscles will be performed as before. The nutritive value of the materials he regards as insignificant; but, in tendencies to hæmorrhage, there may be positive danger of inducing this to a dangerous extent. We must, therefore, on physiological grounds, prefer human blood in cases of hæmorrhage from typhoid fever, as not only the best, but the only safe material. Both Havemann's and Mosler's successful cases were done with human blood. Mosler believes that transfusion into an artery is always to be preferred; and defibrinated blood, which Panum long ago showed to be quite as useful in anæmia as that containing fibrine, should be used. Even Billroth, who combats transfusion in the *Wiener Medicinische Wochenschrift*, nos. 1-4, 1875, declares for defibrinated blood; and perhaps the successful cases here recorded may modify his objections.

[It is to be noted that rigors sometimes occur after saline injections, as well as after transfusion. The simplicity of the instrument in Dr. Havemann's

cases is also noteworthy, as it often happens that complex apparatus cannot be obtained when most wanted.—*Rep.*]

W. BATHURST WOODMAN, M.D.

PIERRET AND TROISIER ON TWO CASES OF PROGRESSIVE MUSCULAR ATROPHY.—In the *Archives de Physiologie* for March and April, 1875, Messrs. Pierret and Troisier relate two cases, one of which occurred under the care of M. Vulpian, another under that of M. Charcot.

The first case (that under M. Vulpian) was that of a man, aged twenty-seven. There was nothing worthy of note in his family history. By occupation he was a coppersmith. He had been a fairly healthy man up to September, 1872. He then first noticed that he was growing weaker. This condition increased, and in the month of December of the same year he was compelled thereby entirely to desist from work. He entered the hospital of La Pitié in April, 1873. At this time the muscular atrophy was strongly marked. It principally invaded the muscles of the neck, shoulders, and back. The arms were also affected. The lower limbs appeared intact. Speech was slow; the tongue, however, moved freely. The sight and hearing were good. The remaining organs offered nothing worthy of notice. His condition gradually became more and more marked; his respiration became difficult; he could not swallow without difficulty. The food escaped, into the back of the nose and the air-passages. The movements of the tongue became less free. The osseous points about the shoulders and the ribs stood out clearly. Gradually the movements of the lower limbs became more feeble. The head was bent forward on the chest. Latterly he became subject to attacks of suffocation, and in the end he succumbed to an attack of bronchitis. This occurred on November 11, 1873, about fifteen months from the commencement of the illness.

At the necropsy, made twenty-four hours after death, the lungs were found congested, the heart normal. There was congestion of the pia mater, on the lateral aspect of the cerebral hemispheres. The vessels at the base were healthy. All the cranial nerves were normal in volume, with the exception of the spinal accessory and the hypoglossal. The spinal nerves were atrophied, and presented a less white aspect than the cranial nerves, more particularly on the right side; the hypoglossal nerves were also atrophied, and had a translucent appearance. Just below the point of the calamus scriptorius the pia mater was thickened, and presented two or three small clots. The medulla and the upper part of the spinal cord were more pigmented than normal. The grey matter of the cord was rose-tinted: this was particularly found to be the case on making a section between the third and fourth pairs of nerves on the right side; the white substance was normal. The muscular system was all, more or less, atrophied and altered in colour. Microscopically, the muscular tissue was found to contain a large quantity of connective tissue, containing adipose vesicles, the fibres themselves varying in dimension. The striation remained clear. The nerve-tubes also varied in size and in the amount of myeline. The spinal cord, after being hardened in chromic acid, was stained with carmine and cleared by means of alcohol and oil of cloves, being subsequently mounted in Canada balsam. In the cervical region it was found to have undergone atrophy of the nerve-cells in the anterior

horns, and a diminution in their number. This alteration, though equal on each side throughout most of the cervical portion, was found to proceed higher on the right side than on the left. This was the chief morbid appearance presented throughout the cord.

Case 2 was that of a woman, aged fifty-six. She had had an unhealthy life, having had various complaints and disorders, more particularly those met with in scrofulous subjects. She was a lace-worker. The first symptoms of the disorder under observation seem to have come on about the age of twenty-two. These became more marked, rendering her less and less able to carry on her occupation. Various remedies, such as iodide of potassium under the suspicion of syphilis, galvanism, and various other forms of electricity, were tried without avail. Finally she was compelled to give up work, and was admitted into the Salpêtrière, where she remained for many years, her symptoms slowly becoming more marked but without remission. She was at length placed in the infirmary under the care of M. Charcot at the age of fifty-six years. The muscles all over the body presented a condition of atrophy. About a month after admission she was seized with a dry cough, difficulty in swallowing, loss of voice, and irregular and painful breathing. Death was caused by dyspnoea and arrest of the movement of the diaphragm.

At the necropsy, the lungs were found to contain remains of caseous pneumonia scattered throughout them. The heart was small, and its muscular tissue yellowish. The muscles were nearly all, more or less, altered in colour and shrunken. Microscopically they were found to contain pigmentary granules. The fibres were much reduced in volume, and of a pale yellow colour. In some parts, there was a proliferation of the cells of the muscular tissue. The spinal cord was examined in the fresh condition about the middle of the cervical region; some of the cells presented a normal appearance, others were pigmented. In those cells which were most affected the nucleus and the nucleolus had disappeared. After hardening with chromic acid, the white matter and the posterior horns of the cervical region were found to be normal, but in the anterior horns the cells had undergone pigmentary degeneration, and in some places, more particularly about the level of the fourth cervical pair, they had disappeared altogether. This was more marked on the right side. In the locality where this disappearance had taken place, the anterior horn corresponding to it seemed to have undergone a true inflammation; the horn itself presented a fibrous appearance, and contained no cells except in the neighbourhood of the tractus intermedio-lateralis. In the dorsal region, the cells of the anterior horns were small and few in number. In the lumbar region, the cells of these organs only presented a slightly pigmented appearance. In the medulla oblongata there was only to be observed a small patch of sclerosis in the neighbourhood of the left pyramid.

These two cases, in a general view, only differ from each other in the different time occupied by the disease. The first was more rapid than the second; but this rapidity does not remove it from the typical cases of progressive muscular atrophy. In both cases there were the same insidious approach, the gradual invasion of separate groups of muscles, the absence of febrile symptoms. In both of them also the disappearance of the nerve-cells from the

anterior horns was a marked symptom. In the first case there was no pigmentation of the cells, but this should be looked upon as a symptom of less importance than the entire disappearance or the atrophy of the cells. It is undoubtedly a condition brought about by an impairment of the nutrition; such, for example, as may take place from the vascular derangements of old age. Indeed, the researches of one of the authors of this paper, at the Salpêtrière, would seem to determine that this pigmentation is a characteristic sign of senile alteration. [This view would seem to bear out that expressed by Herbert Major in the *West Riding Reports*. He says, speaking of the condition of senile atrophy: 'I believe the great change, and the one which is invariably present to a greater or less extent, is a granular condition of the nerve-cells.'—*Ref.*]

This pigmentation, therefore, is not a lesion peculiar to progressive muscular atrophy, while the disappearance of the nerve-cells is characteristic. The sclerosed condition of the anterior horns in case no. 2 is due to the slow retraction of the tissue on the spaces occupied by the cells which had disappeared. These changes must all be admitted as the results of subinflammatory processes, and they are ranked by some pathologists among the subacute myelites. Each of these cases was terminated by glosso-labio-laryngeal paralysis, death in both cases being too rapid for there to be any well-marked changes discovered in the medulla. There is very little doubt that this form of paralysis is in its turn complicated with muscular atrophy, particularly in the muscles of the tongue and of phonation.

W. KESTIVEN, JUN.

RECENT PAPERS.

- On the Expectant System in Pleurisy. By Dr. Michel Péter. (*France Médicale*, May 22.)
 On the Temperature and Circulation after Crushing of the Cervical Spinal Cord. By Jonathan Hutchinson. (*Lancet*, May 22, 1875.)
 A Remarkable Complication of so-called Catarrhal Pneumonia. By Dr. Knight. (*Boston Medical and Surgical Journal*, May 13.)
 Hydrothorax and Abscess of the Lungs cured by the Evacuation of the Fluids. By Dr. Ferdinando Verardini. (*Gazette des Hôpitaux*, May 25.)
 Acute Pharyngo-Laryngeal Miliary Tuberculosis. (*Gazette des Hôpitaux*, May 22.)
 On the Rational Treatment of Some Forms of Hemiplegia. By Dr. Alfred Carpenter. (*Practitioner*, May, 1875.)
 Hydatid Cyst of the Liver: Cautey and Puncture: Cure. By M. Desprès. (*Gazette des Hôpitaux*, May 25.)

SURGERY.

VERNEUIL ON PRECOCIOUS SECONDARY TRAUMATISMS.—In an article in the *Archives de Médecine* for December, 1874, Professor Verneuil designates, under the title of 'secondary precocious' traumatic neuralgias, more or less acute pains in the traumatic focus, its neighbourhood, and even at a great distance from it, taking on the neuralgic character and intermittent type, not susceptible of explanation by the ordinary causes of traumatic pain, resisting antiphlogistics and narcotics, and easily yielding to sulphate of quinine. These neuralgias are not uncommon, and M. Verneuil's study is not only interesting from the point of view of general pathology, but also on account of the patient, whose cure is retarded, and even endangered, by them, whilst they

can be quickly cured by sulphate of quinine. The secondary pain presents five varieties. 1. Local pain, limited to the seat of the traumatism. 2. Local pain with peripheric irradiation. 3. Local pain with peripheric indolence and distant manifestation. 4. Simultaneous peripheric and local pain. 5. Local indolence; distant pain only. In order to establish the existence of these varieties M. Verneuil reports a series of cases which is very complete, and in many ways very interesting. He has the happy power of enriching his text as he goes on with many very valuable hints borrowed from his surgical practice and from ingenious researches on different points of surgical pathology. In one part we meet with an account of the laborious ablation of an enormous parotid tumour; in another, a case of extirpation of an enormous tumour of the breast, whilst amongst the notes we find a short description of a special plan of dressing for extensive wounds of the face, neck, and breast.

Whatever may be the nature of the traumatic lesion, all the numerous patients whose cases are reported show an occasionally very intense neuralgia, with repeated attacks which have yielded to sulphate of quinine. In the second part of his paper, M. Verneuil makes a careful investigation of the phenomena accompanying secondary traumatic neuralgias. In the muscular system there are clonic spasms of contraction, want of power in the limbs, simulating partial paralysis. In the vascular system at the epoch of the neuralgic attack there occur local congestions and even hæmorrhages, as intermittent as the neuralgic attacks. Sometimes the wound assumes a diphtheritic appearance, and in some cases even the distant neuralgic attack is a precocious symptom of a local phlegmon or an attack of erysipelas. The general phenomena are not very marked as a rule. Precocious secondary traumatism is in itself apyretic; it may, however, be preceded, followed, or accompanied by fever, but this is a simple coincidence. The neuralgic attack is, however, in some cases followed by the appearance of herpetic vesicles on the lips or face. M. Verneuil has already called attention at the Société de Biologie, in May, 1873, to the appearance of herpes labialis as a critical symptom in traumatic lesions.

The pathogenesis of precocious secondary traumatic neuralgias, their etiology, diagnosis, and treatment, complete the study. The relations of these painful attacks to impaludism rheumatism and other general affections are shown with M. Verneuil's well-known care, in the investigation into the relations between traumatisms and diatheses. He has long since pointed out that a traumatism may bring on the reappearance of a diathesis which had not made itself manifest for a shorter or longer period; traumatisms show a true revival of diathesis. The study of precocious secondary traumatic neuralgias, according to M. Verneuil's method, will form the basis of a future chapter of surgical pathology forgotten up to this time—pain in traumatism.

MACEWEN ON PENETRATING WOUNDS OF THORAX AND ABDOMEN TREATED ANTISEPTICALLY.—Dr. William MacEwen (*Glasgow Medical Journal*, January, 1875) gives four cases, all treated in the same way; and all with equally good results.

Case 1. A boy, aged twelve, was stabbed in the back, and only after much and careful probing was a visceral wound found, and then in the lung-substance

a piece of the blade of a pocket-knife; this was after some difficulty extracted, and was the means of detecting the assailant by fitting his broken knife. The wound in this, as in the other cases, was thoroughly injected with carbolic lotion (one part in forty) and then dressed in the usual way with antiseptic gauze. The probing was in the first instance persevered with, in consequence of a peculiar catching at the throat during breathing. In three weeks the patient was perfectly well.

Case 2. A man, aged forty-six, was stabbed on the left side of the chest, the wound passing into the anterior mediastinum. The heart could be felt by the finger passed into the wound. The treatment was the same, sutures being passed and tightened as soon as bleeding ceased. He was enabled to return to work, well, in less than three weeks.

In remarking on these two cases Dr. MacEwen points out that the antiseptic treatment enables a careful examination of the wound to be made with the probe or finger in safety, while in the first case a probable source of fatality was removed. This he claims as an advance in the surgery of these cases instead of the ordinary plan of not touching them, and thus 'groping in the dark' in the after-treatment.

Case 3. A lad, aged seventeen, was stabbed in the abdomen; a knuckle of uninjured intestine being held between the lips of the wound. The wound was injected, sutures passed and tightened after the bleeding ceased, and lead and opium given internally. In ten days he was well enough to desire to get up, and the wound had healed; but he was kept quiet for three weeks.

Case 4. A man aged twenty-eight, with an abdominal wound of three inches, and another of one inch, the former evidently perforating the intestine. The same surgical treatment was adopted, along with morphia suppositories, the bowels being kept quiet for a fortnight. In a month he was well and strong.

[We have seen similar cases treated antiseptically in Edinburgh with equally good results, and think Dr. MacEwen is right in advocating careful examination with antiseptic precautions in preference to the usual treatment recommended in the surgical textbooks.—*Rep.*] J. KNOWSLEY THORNTON.

BOUISSON ON THE PROPER TIME FOR ASPIRATORY PUNCTURE IN THE TREATMENT OF STRANGULATED HERNIA.—Dr. Bouisson (in his *Thèse de Paris*, 1874, and *Bulletin de Thérapeutique*, April 30) passes in review the principal cases relating to this new method of treating strangulated herniæ. He reports eight in his own practice, which yielded seven cures. From the whole number of cases, amounting to thirty-five, he draws the following statistical results: Cases of cure by aspiration after taxis, twenty-seven; insufficient aspiration, keliotomy, cure, four; insufficient aspiration, death, four. These figures speak strongly in favour of this operation. It affords excellent results in inguinal hernia. The issue is less certain in crural hernia, notwithstanding that it has been successful in several cases; and it is desirable to try it in all practicable cases. Either Dieulafoy's or Potain's instrument may be used, provided that the needle be sufficiently fine.

The writer only distantly points out one contraindication—the doubt as to the integrity of the intestine, if the surgeon be called in too late; for the rest, the rules to which the employment of aspiration is submitted are the same as those of taxis, of which

it is the most direct and efficacious auxiliary ; therefore it should be performed as soon as a methodically performed taxis has proved the irreducibility of the hernia.

LABATTU ON ANTHRAX AND FURUNCULUS OF THE FACE.—After having in his *Thèse de Paris*, 1874, studied *de novo* the acute form of these inflammations when they are complicated with acute phlebitis spreading along the side of the head, Dr. J. Labattu discusses some interesting points in relation to them, and especially the question of treatment. The gravity of anthrax of the face, complicated with phlebitis, is due to the spreading of the latter on the side of the cranial sinuses, or to purulent infections. The rapid supervention of exophthalmos indicates with certainty the spreading and the possibility of this inflammation of cranial sinuses. Large and early incisions seem to be the best means of preventing and sometimes putting a stop to the phlebitis. No medical means appear to exercise sufficient control over this affection. Dr. Labattu reports several interesting cases in support of his theory ; amongst others, one in which he was the sufferer, and where multiplied incisions seem to have stopped incipient phlebitis.

RECENT PAPERS.

On Fracture by Penetration of the Lower Extremity of the Femur and of the Fissures of the Fragments. By Dr. Nicaise. (*Gazette Médicale de Paris*, May 22, 1875.)

On the Treatment of Obstinate Neuralgia by Neurotomy. By M. Létivant. (*Lyon Medical*, May 23.)

Osteochondroma of the Superior Maxilla. By Dr. Workman. (*Boston Medical and Surgical Journal*, May 13.)

Comminuted Fracture of Femur in a Patient aged Eighty-three : Plaster of Paris Dressing : Recovery. By Dr. Gibbs. (*New York Medical Record*, May 15.)

MATERIA MEDICA AND THERAPEUTICS.

SCHRAMM ON THE INFLUENCE OF AMYL-NITRITE IN MELANCHOLIA.—In the *Archiv für Psychiatrie* (Band v. Heft 2), Dr. Schramm gives his experience of this remedy. After quoting Browne and Brunton, who have experimented with it in this country, he gives his results as follows. A temporary favourable result was, with one exception, seen in all the cases (nine). This occurred at once after the inhalation, and was both subjective to the patient and objective to outsiders. The mental state, at first depressed and painful, became more lively, and the dulness gave way to affability. A few hours after the inhalation the former state, without exception, returned. The favourable effect of the treatment was most apparent after the first or second inhalation, and by repetition became weaker ; so that after two or three weeks' experience it quite failed, especially in its influence on the heart's movement and the course of the circulation, though after an interval it acted as at first. In two cases the remedy preserved its sedative power up to the third month, though even here it failed to thoroughly subdue the symptoms. Even here, it should be added that the two patients were accustomed to morphia, from which they had experienced much relief to their depression.

In most of the cases anæmia was present ; but this gives no necessary premises for the psychic operation of the drug, for once it failed (even at the

first inhalation) in a notably anæmic person, and in two instances it succeeded where plethora and other congestive symptoms were present.

Although it is proved that amyl-nitrite causes dilatation of the brain-vessels, we have yet no means for deciding whether the influence is the consequence of the dilatation of the vessels and the greater flow of blood, or whether there is a direct influence of the blood, changed in composition by the amyl-nitrite, on the nervous apparatus. The last two cases, where plethora showed itself, seem to speak for the latter hypothesis ; although even here a still greater widening of the vessels may have occurred and have led to recovery. Anyhow, Meynert's theory of the dependence of melancholia on anæmia of the brain is confuted.

The practical result is, that we can by amyl-nitrite relieve for a time the condition of melancholia and its attendant neuro-pathological symptoms. To the cure of melancholia, having regard to the as yet unknown brain-changes causing it, our experience is only of use when the disease is of short duration or has frequent periods of remission.

When the remedy does not quickly act, it is of no special use ; and, as a palliative, it is, because of the rapidity with which the system becomes accustomed to it, behind other narcotics. Let it be only used in mild cases of simple melancholia ; but it is not yet clear that such cases are more easily influenced when associated with an anæmic condition than when with plethora. T. C. SHAW, M.D.

KOROWIN ON STARCHY FOOD FOR INFANTS.—In the *Fahrbuch für Kinderheilkunde und Physische Erziehung* is a contribution by Dr. Korowin, on the assimilation of food consisting of starch in infants. The practical object of the experiments and observations in this communication is the determination of the value of various preparations of starch in the nutrition of infants and young children.

It appears that a secretion may be obtained from the mouth of a child as soon as it is born, though in minute quantity and with difficulty.

It is generally found to be acid unless the mouth of the child has been previously washed carefully, when it has a neutral or alkaline reaction. The effect in converting starch into sugar of the secretion of the salivary glands of the mouth and that of the pancreas was obtained by making infusions from the glandular tissue, and observing the changes produced upon solution of starch. It was ascertained that till the end of the third week the glandular secretion of the mouth exerts no influence of this kind, though the pancreas does, and always to a much greater degree than the former. R. J. LEE, M.D.

DA COSTA ON BROMIDE OF IRON IN CHOREA. Professor Da Costa, in a clinical lecture on this subject (*Medical and Surgical Reporter*), says, 'Having now used it for three or four years, my experience from the treatment of a large number of cases, giving abundant opportunity to witness its good effects, induces me to like it better than any other one article in the treatment of chorea. It should be given in increasing doses, never commencing with less than five grains for a child, and rapidly increasing the dose to twenty. It may be given in plain syrup and water in the form of a pill, or better, in an effervescing powder. It not only affects the chorea, but also impresses the nervous system as a sedative, quieting it, and giving the

patient rest. It is also a valuable agent in treating the incontinence of urine in children. It was in a case of this kind, complicating chorea, that I first observed its value; being surprised and pleased to see that, as the symptom which led to its administration improved, the chorea also diminished and soon disappeared. Since then I have used it almost continuously. Local chorea, or clonic muscular spasm, such as twitching the eyelids, etc., in hysterical women, are sometimes cured by this drug after the failure of other remedies. In answer to the question whether it is the bromine or the iron that benefits, I think it is the combination; that neither alone accomplishes the result; for it benefits cases that have previously taken iron without improvement; and as regards the other bromides, we certainly can not claim for them any especial value in chorea, as they frequently disappoint us. The remedy occasionally fails, as all remedies sometimes do in this obstinate affection, but it certainly is one of the most valuable agents we possess for the treatment of chorea.

CARSTENS ON DYSENTERY CURED WITHOUT OPIUM.—Dr. J. H. Carstens, in a paper in the *Detroit Review of Medicine and Pharmacy*, says, 'Dysentery being an "infectious febrile disease," due to a specific poisonous germ, and quinine being the best remedy to destroy and neutralise the specific poisons, it ought to be good for dysentery. Ulceration being a prominent result of dysentery, as quinine diminishes ulceration, this is the remedy. Hæmorrhage is a prominent symptom, and as ergot contracts the smaller blood-vessels and prevents hæmorrhage, that is the remedy. Severe spasms and tenesmus being most complained of by the patient, and ipecacuanha being most emphatically an antispasmodic, it is good for dysentery. The proportions of these remedies in each suppository should be regulated by the symptoms. 1. By means of suppositories we can cure dysentery; 2. This is the most rational and scientific mode of treating this disease; 3. Children object less to their use than to nauseous drugs administered by the mouth; 4. And that probably quinine, ergot, and ipecacuanha are the best remedies to use at present at our command.' The following is the formula used by Dr. Carstens in a child five years old:—*R.* Pulv. ipecacuanhæ, ʒss; Pulv. ergotæ, gr. xv; Quinæ sulph., gr. iv; Olei theobrom, q. s. For twelve small rectal suppositories. Introduce one every two hours.

RECENT PAPERS.

On the Treatment of Phosphorus-Poisoning by Intravenous Injections of Oxygen. By Professor Thiersse. (*L'Union Médicale*, May 25.)

On the Influence of Plantations of Eucalyptus Globulus in Countries where Fever is prevalent; and on the Treatment of Intermittent Symptoms by this Vegetable Product. By Dr. Gimbert. (*Gazette des Hôpitaux*, May 22.)

OBSTETRICS AND GYNÆCOLOGY.

SIMON ON THE EVACUATION OF HÆMATOMETRA THROUGH THE BLADDER AFTER DILATATION OF THE URETHRA.—In no. 20 of the *Berliner Klinische Wochenschrift*, there is a brief communication from Professor Simon, of Heidelberg, in which he states that an article in no. 16 of the same journal for the current year from Dr. Spiegelberg, of Breslau, on 'Fis-

tures of the Neck of the Bladder,' had attracted his attention, because Spiegelberg mentions, without details, a case in which he had opened a hæmatometra through the bladder, after first dilating the urethra, and that no injury to the bladder resulted. Simon states that he has for a very long time advocated this method in his lectures, and at least a year ago (April 21, 1874), he proposed it at a large meeting of professors and practical surgeons at Heidelberg, as the best method where there are objections to an opening between the rectum and bladder. Professors Hecker, of Munich; Schulz, of Jena; and Olshausen, of Halle, were present when he explained his reasons for preferring this to the opening through the rectum advocated by Scanzoni and Baker Brown. Dr. Bidder, of Mannheim, also present, in an article in the same journal, of Nov. 16, 1874 (no. 46), on a 'Case of Hæmatometra of the Uterus,' writes as follows. 'You must also allow me to remind you that we cannot always succeed in restoring the natural way to the uterus by separating the vaginal walls, or through artificial restoration of the vagina, and in such cases we must not forget Professor Simon's proposal. In such cases Simon would dilate the urethra, easily done by proper specula, and then push through the posterior wall of the bladder into the uterus below the peritoneum, making a free opening there, through which the retained blood may escape easily and with comparative safety.'

Simon adds that he has given details of the operation in an article (already in the press) entitled 'On the Means of Rendering the Bladder Accessible, and on Sounding the Ureter in the Female.' It is to appear in Volkmann's *Sammlung Klinischer Vorträge*.

[It is not quite clear whether the author refers to congenital or to acquired collections of blood within the uterus. From the extract given from Bidder, it would rather seem that cases of imperforate hymen and atresia vaginæ, and cases of occlusion of the os uteri with obliteration of the vaginal canal from accident or disease, are both included, provided that the uterus becomes filled and distended with blood, and that the natural outlet is obliterated.—*Rep.*]

W. BATHURST WOODMAN, M.D.

VOELKEL ON A CASE OF COMPLETE INVERSION OF THE UTERUS.—Dr. A. Voelkel of Berleburg communicates to the *Berliner Klinische Wochenschrift*, March 15, 1875, a case of complete inversion of the uterus occurring fifty-two hours after delivery. It happened in a primipara, aged thirty-two. When she was first seen by Dr. Voelkel, she had been thirty-six hours in labour; the membranes had been ruptured ten hours. The child's head was found firmly impacted in the pelvis in the first position with a large *caput succedaneum*. Delivery was effected by the forceps after three hours' hard work. The uterus did not contract well after the expulsion of the child, and the placenta was forced out by Credé's method. Immediately upon the delivery of the after-birth severe flooding set in, which was, with difficulty, arrested by cold-water injections into the uterus, and the internal administration of ergot. The patient did very well up to the morning of the third day, when severe after-pains came on, coupled with an ardent desire to micturate. Warm fomentations were ordered to the abdomen. Towards evening the pains became stronger and more frequent, with a sensation as if something wanted to pass out of the vagina. Suddenly, at eight o'clock, with

a strong expulsive effort, a globular body was forced out of the vulva, instantly followed by a gush of blood, and in a moment the patient was dead. When seen by Dr. Voelkel, four hours afterwards, the tumour proved to be the uterus completely inverted lying outside the vagina. No necropsy was made. The patient had always flooded at her menstrual periods.

W. C. GRIGG, M.D.

RECENT PAPERS.

Fibro-Myoma of the Uterus removed successfully. By Dr. G. Calderini. (*Gazzetta delle Cliniche*, April 6.)

Oligæmia from Metrorrhagia and Acephalocysts of the Uterus: Transfusion of Blood: Death. By Dr. S. Spaggià. (*Gazzetta Clinica dello Spedale Civico di Palermo*, January, 1875.)

The Diagnosis of Ovarian Cysts and the Indications for their Treatment. By Dr. Rheinstædten. (*Berliner Klinische Wochenschrift*, nos. 18, 19, 20.)

A Case of Atesia Vaginae. By Dr. Schell. (*Philadelphia Medical Times*, May 1.)

A Case of Delivery by Means of the Sericeps. By Dr. Poulet. (*Lyon Medical*, May 23.)

Abortion: Its Causes and Treatment. By Dr. Coles. (*St. Louis Medical and Surgical Journal*, May, 1875.)

DERMATOLOGY.

WEIR ON ICHTHYOSIS OF THE TONGUE AND VULVA.—Dr. Robert F. Weir has contributed a paper upon this subject to the *New York Medical Journal* of March, 1875.

After alluding to what has been written upon ichthyosis or tylosis of the tongue by various English and French authors, Dr. Weir proceeds to mention ten cases, which have either come under his own observation or have been communicated to him by professional friends. Of these cases two occurred in women, and in one of these the vulva was the part affected. This observation is of so much importance that we quote the case without abbreviation.

'Case 3 possesses unusual interest, as it is thought to be the only case yet reported of the disease attacking the vulva. It occurred in a single woman, of gaunt, spare habit, aged sixty-one, who was admitted into St. Luke's Hospital during my service in 1869, with the history of intense pruritus vulvæ running back for many years. She stated that she had had the latter since the age of sixteen; that many things had been tried and failed; that to obtain relief she had used opiates, at first in moderate quantities, but now required ten or twelve grains of morphine daily to quiet her. So severe had been her sufferings that she underwent an operation for the removal by excision and galvano-cauterisation of the mucous membrane covering the labia minora, with but moderate temporary benefit.

'On examination, the vulva was found to be extremely sensitive; vaginismus was also encountered, but forced introduction of the speculum showed the parts beyond healthy, the uterus being the subject of senile atrophy. Starting from the fourchette, and running upward, nearly covering each of the labia minora, and merging insensibly into the normal mucous membrane, was a long irregular patch of a pearly-blue colour, covered by a tenacious secretion of the same colour, which could be partly wiped off, showing thin minute islands, some circular, some irregular in shape, through which the reddened subjacent tissue was seen. The adjacent labia majora were also slightly involved. These opaque patches, or rather

patch (for it was all one) were appreciably thickened and very sensitive to the touch. The follicles of the vulva were in many places enlarged and prominent. A variety of local applications were tried without avail, and she left the hospital, to return in 1870, within eighteen months, with well-marked epithelioma of the vulva, which part was afterward removed *en masse* by Dr. Gurdon Buck.

'While it is acknowledged that the diagnosis of ichthyosis is made retrospectively, yet its characters are now so plain that I feel justified in recording it here.

'At the time of the first operation, which was performed at the clinic of the College of Physicians and Surgeons of this city, Dr. Thomas observed a thick, cheesy, cream-coloured covering of the labia minora which could not be entirely removed by wiping or scraping. The odour was offensive. The vulva was not swollen, though studded over by prominent follicles. Dr. Thomas pronounced it follicular vulvitis, but considered it unique, and was not astonished to learn of its subsequent development into epithelioma. The early history of the case is to be found in the *American Journal of Obstetrics* for May, 1869.'

In his general opinions with regard to the relative frequency of the disease in men, the various forms of irritation which may give rise to it, the difficulty of treating it successfully, and the tendency which it shows to become cancerous, Dr. Weir agrees in the main with those who have previously written on the subject.

W. FAIRLIE CLARKE.

GUIBOUT ON THE TREATMENT OF PSORIASIS. Under the influence of M. Broussais's ideas, Rayer employed blood-letting, leeches, and diet for this affection, and every kind of pommade and ointment have been recommended for its treatment. Petroleum oil and essence of turpentine have only succeeded in complicating matters by an inflammation of the skin, which necessitates treatment, M. Lutz, the apothecary at the St. Louis Hospital, had recommended the following lotion:

Bisulphuret of sodium and antimony . . .	30 grammes.
Water	1 litre.

This treatment, however, brought on vomitings, and an enormous redness of the skin of the whole body, as the only local result. The treatment which has been found to answer best at the Saint Louis Hospital consisted of frictions with pure juniper tar. These frictions must be carefully made twice a day, not only until the squamæ and the elevations have disappeared, but even until every trace of discolouration has disappeared. The duration of the treatment varies from two months to a year and more. At the same time alkaline baths, containing from 800 to 1000 grammes of bicarbonate of soda to each bath, must be used. When the patches are thick, it is advantageous to cause the bath to be preceded by a douche vapour bath, so as to make penetration easier. All skins will not support frictions of juniper tar, and pain and swelling will supervene; the frictions must then be suspended, and vapour baths, emollients and poultices only should be used. When the inflammatory condition has subsided, the use of the juniper tar must be resumed in one of the following formulæ:

Oil of sweet almonds	100 grammes.
Juniper tar	20 to 40 "

Glycerinum amyli	100 grammes.
Juniper tar	15 to 30 "

The best internal treatment is arsenic, which M. Guibout gives either in solution or in pills, giving the preference to arseniate of soda; for pills he prescribes:

Arseniate of soda	1 milligramme.
Extract of gentian	10 centigrammes.

This is sufficient for one pill, of which from six to twelve daily should be taken. The solution he prescribes is:

Arseniate of soda	10 centigrammes.
Distilled water	500 "

About half an ounce of this solution is equal to two of the pills. When M. Guibout prescribes arsenic he always recommends that it should be taken in the course of meals, and that the dose of twelve milligrammes per diem should not be exceeded.

RECENT PAPERS.

On Urticaria. By Dr. E. Münchmeyer. (*Berliner Klinische Wochenschrift*, May 17.)

Purpura Hæmorrhagica successfully Treated by the Hypodermic Use of Ergotin. By Dr. Minich. (*Philadelphia Medical Times*, May 8.)

REVIEWS.

On the Medicinal Treatment of the Unborn Child.

By J. THORBURN, M.D. Manchester, 1875.

In this small treatise, which the author aptly calls 'suggestions,' he discusses very temperately the effects of therapeutics on the intra-uterine life of the child, so far as they are known, instancing the well-known effects of mercurial treatment of the mother in syphilis, and of the chlorate of potash, as advocated by the late Sir James Simpson, in cases of intra-uterine death, which that writer thought to be dependent upon defective oxygenation of the blood. He considers also the physiological and the therapeutical effects of strychnine and chloral upon the fœtus. In those cases where an hereditary constitutional delicacy exists in the mother, and sickly, puny, strumous children are begotten, he considers that medication, in the form of steel and cod-liver oil, may have marked effect and benefit. One case is given in point, where a mother, who had previously had two fair delicate children, and was under treatment during gestation with her third for severe uterine hæmorrhages, iron being much used, gave birth to a fine, dark-complexioned, black-haired child; a later child, before whose birth no such treatment was adopted, was fair and died of morbus coxarius. Although firmly convinced in his own mind of the efficacy of large doses of iron during child-carrying, still he feels his cases are not numerous enough to carry conviction perhaps to a sceptic. The subject Dr. Thorburn regards as one well worthy of further investigation, and feels convinced it will open up a wide field of most useful information; and he suggests mercurial disease as one in which experiments might be made.

W. C. GRIGG, M.D.

A Treatise on Cutaneous Medicine. By H. S. PURDON, M.D. Belfast, 1875.

This consists chiefly of lectures delivered at the Belfast General Hospital, and will doubtless prove useful to those for whom it is more immediately designed.

NEW INVENTION.

NEW INSTRUMENTS FOR CLOSING THE VAGINA AND BREASTS.

M. Borin of Lyons, in order to obviate the inconveniences arising from the use of pessaries, has invented a new kind of instrument (fig. 1), to which

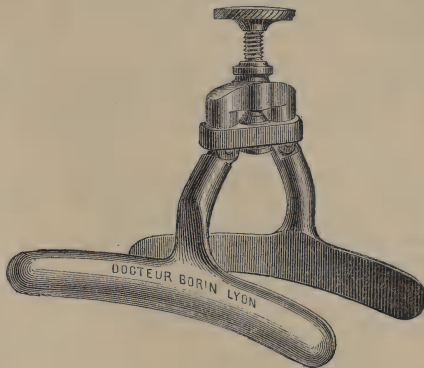


FIG 1.

he has given the name of *fermoir vulvo-vaginal*. This instrument is very easy to use, and patients soon become accustomed to wear it. They are able, after having applied it, to pursue their ordinary occupations, whilst pessaries necessitate inaction. M. Borin also laid another instrument of the same kind before the Paris Academy of Sciences, which he calls *fermoir des seins* (see fig. 2). This instrument

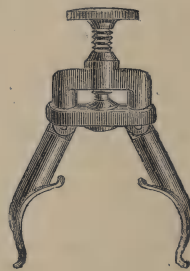


FIG 2.

may also be used to cure incontinence of urine. The urine escapes in consequence of the weakness of the vesical sphincter and the too great contraction of the bladder. By enclosing the end of the prepuce in the forks of the instrument, the flow outwards is prevented. The urine accumulates between the prepuce and the gland and eventually bring on contractions, which awake the patient. This instrument may also be employed in blennorrhagic affections, when it is desired to retain a topical or any other liquid in the canal.

'THESE BE BRAVE WORDS.'—The *Gazette de Pharmacie* is good enough to inform us that M. Haydach has analysed orthoamidotoluene-sulphonic acid and diacorthoamido-paratoluene-sulphonic acid; and also affirms that the action of pewter and hydrochloric acid on nitrobromacetanilide produces hydrochloride of ethenylbromophenylenediamite.

MISCELLANY.

DR. LYON PLAYFAIR has withdrawn his bill for restricting experiments on animals, on account of the appointment of a Royal Commission on the subject, the names of the members of which have not yet been published.

LORD DERBY, in presiding at the annual meeting of the Hospital for Consumption and Diseases of the Chest at Brompton, congratulated the governors on the improved position of the institution.

THE PRESERVATION OF EGGS.—M. Saree, a Professor at Neufchatel, has, says the *Revue Scientifique*, found out a plan for keeping eggs. Whilst they are fresh he coats them with paraffin, and they are said to keep without any trace of change for two years.

THE LOSS OF THE 'SCHILLER.'—Amongst the list of deaths by the wreck of the *Schiller*, the name of Susan Dimock, M.D., will be observed with regret. This lady, who was well known as a physician in Boston, also held for some time the post of resident physician in the New England Hospital for Women and Children.

A TRULY MATERNAL GOVERNMENT.—The Council of State for Switzerland, under date of December 1, 1874, has issued a decree prohibiting the use of injurious substances in the manufacture of sweetmeats; a very proper, though a very minute precaution. Happy indeed must be that country whose statesmen can busy themselves with the composition of hardbake and bulls'-eyes. We recommend this example of the *dulce* and the *utile* to the consideration of Prince Bismarck, whose thoughts are lately supposed to have run more on needle-guns and cartridges than is good for himself or for the peace of Europe.

THE MEDICAL PROFESSION IN SPAIN.—The status of the profession in Spain has lately been the subject of legislation with a view to its elevation and improvement. By a decree dated April 2 last, whenever a professorial chair is vacant, three months' notice will be given, so that candidates may have time to prepare themselves. During that interval they must have submitted all their testimonials, writings and titles, and a document showing what mode of teaching has hitherto been adopted by each candidate, and what will be his plan in the future. The members of the electing jury are named by the minister. Two of them must be taken from the acting professors of the Faculty or School of Medicine; the five others are chosen from amongst the university or scientific bodies, to which the chair is affiliated. There are three examinations: 1. A verbal examination, in which the candidate is interrogated on ten questions. 2. A lecture of one hour's duration on a subject indiscriminately chosen; after which, each candidate may discuss the subject with his competitor for half an hour, the latter being allowed half an hour to reply. The candidates are, as far as possible, arranged in series of threes, but if a series should comprise but one candidate, the president must take up the discussion. 3. A lecture or verbal conference, of which the object is evidently to show the fitness of the postulant for the professorial chair. These lectures, of course, vary according as they are in connection with a chair of clinical medicine, pathology, or anatomy, and are practical or theoretical according to the chair to be filled. The judges are not allowed to take part in the voting unless they have been present at all the examinations. Candidates cannot be declared eligible until they have obtained a majority of votes, and they are classed according to merit. The documents are afterwards to be sent to the Board of Public Instruction, submitted to the Council of State, and finally to the Prime Minister. The novelty in these decrees consists in the foundation of the competitive examination with its various trials of knowledge, and in the composition of the jury, as nothing of the kind has hitherto been proposed in other countries.

THE London Temperance Hospital has now been nineteen months in existence, and at the annual meeting of its supporters it was reported that the treatment of disease without resort to alcohol had been prosecuted with fidelity and success. It is proposed to erect a new building on a plot of freehold ground in the Hampstead Road.

MIDWIVES IN RUSSIA.—M. Matuciev, a distinguished obstetrician of Kiew, has just established a kind of dispensary school for obstetrics, attached to the University Faculty of Medicine of the city. Pupil midwives who are legally admitted into this school will be deputed to give consultations and to attend poor women in their confinements at their own homes.

'EARTH TO EARTH.'—The declaration of opinion by the eminent men whose names are appended to the appended document should do much to set at rest the groundless fear of being buried during a state of suspended animation, which is but too prevalent amongst all classes of unscientific society. 'The following question, arising out of an apprehension admitted to exist, lest a curtailment of the interval now allowed between death and burial might lead to the accident of interment before life were extinct, has been proposed to us by Mr. Seymour Haden. "As hospital physicians and surgeons of extended experience, has it ever occurred to you to see a case of so-called suspended animation or trance, which in your opinion could be mistaken for death; and do you think, the present state of our knowledge and resources considered, that the occurrence of such a case, or of such a mistake, can be regarded as possible?" In reply to this question, we desire to say that no case of the kind it suggests ever presented itself to any of us, and to express our confident belief that the dread of the possible occurrence of such a case is without support in the medical experience of this country; and, further, that the signs of death are as certain after a few hours' suspension of the vital functions as they can be after many days. It would, we feel, be a matter of regret, and an indication of a low state of public intelligence, if the groundless fears to which our attention has been directed by Mr. Seymour Haden, should hinder for a moment the adoption of an improvement in our social system, the importance of which cannot be overrated.—George Burrows, M.D., President of the Royal College of Physicians; Wm. Fergusson, William W. Gull, M.D., William Jenner, M.D., James Paget, Thomas Watson, M.D.'

NOTICE.

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The London Medical Record.

WEDNESDAY, JUNE 9, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

HUGHLINGS JACKSON ON NERVOUS DISSOLUTION, AS ILLUSTRATED BY EPILEPTIC MANIA.

Dr. Hughlings Jackson accepts the hypothesis of nervous evolution as stated by Spencer, and the hypothesis of reflex cerebral action of Laycock. Dr. Carpenter is, next to Laycock, the most able exponent of the latter doctrine, for which, however, he uses the term 'unconscious cerebration.' Dr. Hughlings Jackson uses the term 'dissolution' as the opposite of 'evolution.' Cases of disease of the nervous system, he considers, are strongly in favour of the verity of the two hypotheses mentioned. In the following paper the doctrine of dissolution is illustrated by cases of epileptic mania. The dissolution here is, Dr. Hughlings Jackson thinks, that the highest nervous processes are temporarily exhausted by an excessive, that is, an epileptic nervous discharge. It is just what, according to him, happens to a subordinate series of nervous processes when there is hemiplegia after a severe convulsion; then the corpus striatum is the part temporarily exhausted. The highest nervous processes are the anatomical substrata of consciousness. The principles here stated apply to cases of insanity, ordinarily so-called, as well as to the acute temporary insanity after epileptic paroxysms. In the former cases there is 'defect of consciousness,' and comparatively slight increase of mental automatisms.

It must be explicitly mentioned that the division into two elements, negative and positive, corresponds practically to a similar division made by Laycock about thirty years ago, and to one subsequently made by Monro. The increased automatic action on suspension of consciousness is, to use the words of Anstie and Thompson Dickson, due to 'loss of control.'

The following is from the abstract of the *Transactions of the Hunterian Society*, 1874-5.

In a case under the care of Dr. Woodman, a lad had paralysis of the tongue on the left side, paralysis of the left side of the palate, and aphonia from paralysis of the vocal cord. Dr. Hughlings Jackson has described cases of this kind with necropsies in the *London Hospital Reports*, vol. iv. 1868. He believes that the palsy of the palate and that of the vocal cords are certain warrant for the diagnosis of disease of the eighth nerve within the cranium, no doubt of the spinal accessory division of it which gives motor power to the pneumogastric. He does not believe that there is paralysis of the palate in uncomplicated disease of the portio dura nerve, as many physicians suppose.

After mentioning in his paper several modes of connection of mental conditions with epilepsy, Dr.

Hughlings Jackson said that he should consider only temporary mental disorders immediately following epileptic paroxysms. The parts of the paper read were chiefly made up of reports of cases. In this abstract of what was prepared for reading, the several principles which the cases were intended to illustrate were stated.

The condition of mind after such paroxysms is duplex. There is (1) negatively, the passive symptom of loss of consciousness; as well as (2) positively, the active symptom, mental disorder. The loss of consciousness is the most important symptom. There are, after paroxysms of different degree, all degrees from very transient, slight confusion of thought (defect of consciousness), to deepest coma; degrees corresponding to the quantity of the highest nervous centres suddenly put *hors de combat*. With regard to the positive, or active element, Dr. Hughlings Jackson did not limit himself to speaking of epileptic mania; he pointed out that the abnormal conditions after paroxysms varied in degree from a slight departure from normal actions to seemingly objectless fury. Otherwise regarded, they varied in degree from actions which were often in themselves trumpery and mere caricatures of innocent normal actions to coarse and violent actions; as, for example, purposely smashing of furniture, and unprovoked murderous assaults. It was therefore, he thought, necessary to have a term of more inclusive meaning than epileptic mania. All the actions, whatever their kind or degree, had the common character of being automatic and unconscious. Hence he used the general expression, 'mental automatism.' The term was useful for what it implied; the actions being automatic and unconscious, the 'agents' were irresponsible. Dr. Hughlings Jackson insisted that the slightest cases (*i.e.*, cases in which the actions are but slight caricatures of normal actions) are the most important. They are so in two ways. As experiments on the organ of the mind, they are more easily analysed, and thus they are of greater scientific value. Then, practically, they are important because from the consideration of the automatic actions in these cases, we can prove that elaborate and highly compound actions may be done unconsciously by epileptics after their seizures. Thus, we could more easily convince the laity of the possible irresponsibility of some particular epileptic lunatic, whose mental automatism had resulted in murder under circumstances at first glance suggesting design. Dr. Hughlings Jackson insisted, that both for scientific purposes and for the practical purpose just mentioned, our first task is to note, not so much the enormity, nor the violence, or speaking generally, the 'importance' of the mental automatism, as the complexity of the actions gone through; and again, the absurdity or insanity of the actions. He related the case of a man whose mental automatism was that he mixed cocoa in a dirty gallipot intended for cat's food, with a mustard spoon. This, although in itself a trumpery action, was a far more elaborately compounded action done unconsciously, than the simple headlong fury of many epileptic maniacs. It is just as much so as buttoning the waistcoat is a more highly compound manual action than striking a heavy blow with the fist. The cocoa-mixer went to a cupboard to get a spoon, as he might have gone to another room for a poker. The whole action was determined by a conversation held just before the attack. The slighter the discharge, and consequently the shallower the dissolution after-

wards, the higher in kind would be the mental automatism, that is, the actions possible would be more special, more highly compounded, and more easily guided by external circumstances. This obviously has a practical bearing, for it amounts to saying that actions, which from their elaborately compound nature would look conscious and voluntary, may be automatic doings occurring after a fit too slight to attract attention. On the other hand, the more deeply the brain is affected, the less special the actions, the less highly compounded, and less guided are they by external impressions. Thus maniacal fury is action of a more general although of a more violent kind; it is less complex although more important to bystanders, and less guided, although perhaps, more easily excited by external circumstances.

For purposes of illustration, several degrees may be arbitrarily assumed. 1. If the dissolution be very slight, the patient's mental automatism represents more or less what he was about to do, what he had been talking of, etc. 2. If it be deeper, it refers to some fixed habit, his occupation for example. 3. If it were deeper still, the lower strata of the man's disposition would crop up. 4. If it were still deeper, all mental processes would be affected, and the automatism would be no longer mental but physical, there would be coma.

A CASE OF CONGENITAL ANAL OCCLUSION OF AN UNUSUAL KIND.

By the late SUSAN DIMOCK, M.D.,
Resident Physician to the N. E. Hospital for Women and Children.

WITH AN OBITUARY OF THE AUTHOR,

By MARY PUTNAM-JACOBI, M.D.,
New York.

Nora N—, a mulatto child aged eleven years, was brought to me in summer for examination, with a view to an operation for incontinence of fæces. From the rather imperfect history given by the aunt of the little patient, it appeared that at birth the anus was imperforate, with, however, a fistulous opening in the perineum. Within the first week after birth, she was operated upon at the Massachusetts General Hospital by Dr. S. Cabot, with whose kind permission I insert the record of the case. While there, a diagnosis was made of congenital constriction of anus, the passage being pervious, admitting a full-sized probe. A small sponge-tent was introduced and retained in place by adhesive strips. Next day a no. 12 bougie was introduced. The opening was then considered large enough and the patient was discharged. She was re-admitted to the hospital a short time after, on account of the opening being insufficient for the demands of nature, and an operation was now deemed necessary. Upon further examination the case was decided to be one of congenital occlusion of the anus. The place where the true anus should be was marked by a depression and discolouration of the skin, but no opening existed there. One inch in front was the fistulous opening enlarged by Dr. Cabot, through which the fæces were discharged. A large silver probe was introduced into the false anus, and carried back as far as the centre of the depression in the direction of the true anus. With the probe for a guide a + incision was made through the skin. The mucous membrane exposed by the incision was then united to the edge of the wound by means of three sutures. A small roll of

cloth, well oiled, was introduced into the anus and left for a short time. Fæces continued to pass through both openings, when the patient was discharged.

The passage of fæces has always been involuntary, and the action of the bowels very irregular, there being sometimes no movement for a week, and at other times as many as twenty-four discharges in a day, while, whether constipated or otherwise, there is no voluntary control over the passage.

Upon examination, I found two openings into the rectum, one (the artificial opening) where the anus is normally found, large enough to admit a goose-quill, the other opening through the perineum about three-quarters of an inch in front of the first, and large enough to admit the fourth finger. The child being very nervous, very sensitive, poorly nourished, and slightly feverish (the temperature ranged from 99° to 100° Fahr. during several evenings when it was observed), all operation was deferred, and nourishing diet and out-of-door play recommended during the summer.

In September the patient entered the New England Hospital for Women and Children, and upon the 13th was etherised for thorough examination and such operation as should show itself advisable. I had hoped that the contraction of the artificial anus might be owing to the sphincter, and might be overcome under the influence of ether, in which case a closure of the congenital fistulous opening would remedy the evil, but I found that the anus remained impervious to the finger, a tense cicatricial ring preventing the least dilatation, while water injected flowed constantly from both openings, showing the entire absence of any sphincter action.

Under these circumstances, the best thing seemed to be the division of the bridge between the two apertures, and I hoped that the one large opening thus formed might become small through cicatrization of the cut surfaces, and that even perhaps later a tolerable sphincter might develop itself through use, as is often the case. I therefore divided the bridge of the perinaeum without much bleeding, the tissue cutting like cicatrix, and the cut surfaces, which were half an inch in diameter, retracting immediately to a line. The opening thus formed was large enough to admit with ease four fingers, but to my surprise and great pleasure began to contract visibly and take on the folded appearance of a normal anus, so that after the lapse of ten minutes a quart of water being injected was retained perfectly, and only ejected with the use of a Sims' speculum. The after history of the case confirmed the most favourable anticipations; the wounded surfaces healed rapidly, there was no fever again, and not the least involuntary defecation. During the first week the bowels were moved by enemata, but afterwards naturally, and by September 21 the child was discharged well.

The question naturally arises as to the exact nature of the malformation. It seems to me that we can exclude here the usual atresia of the rectum caused by deficient development of the anal end, which, as embryonic investigations show, starts from the skin and stretches upward toward the rectum. For in such case the sphincter, which shares to some extent in the deficient development, could not have attained so perfect an action in so short a time. Neither can the anterior opening have been of the fistulous nature which is usual in many cases of aproctia, for even after opening the true anus the fæces continue

to discharge involuntarily through the fistula, which is of course without sphincter. But in our case the anterior opening, the artificial anus, and the divided surfaces, all contracted regularly and alike into one round aperture with sphincter action everywhere. Are we not, then, justified in considering this case one of embryonic ulceration and adhesion of the nates near the anal opening, an adhesion complete posteriorly, but leaving anteriorly a canal between the bridge thus formed and the perinæum, which canal passed backward into the anus? With this view of the case, the mechanism by which the sphincter was kept powerless for so many years is easily explained. Draw together, as illustration, the commissures of the mouth, and the action of the orbicularis oris will be so far prevented that at least no liquid can be retained in the mouth. The adherence of the skin at the margin of the anus drew together the sphincter laterally, and rendered its circular action impossible. When this strain was taken off by the division of the bridge, the sphincter naturally assumed its normal action.

The above article was entrusted to Dr. Mary Putnam-Jacobi, of New York, for publication, by Dr. Susan Dimock, just before her departure for Europe in the ill-fated *Schiller*. Dr. M. Putnam-Jacobi also furnishes the following obituary to the *New York Medical Record*.

'Dr. Dimock graduated with honours at Zurich after the prescribed four years' term of study. Her thesis was written on the cases of puerperal fever she had had an opportunity of observing in the wards of the hospital. She has been practising medicine in Boston a little over two years, but in this short time has already won for herself a deserved reputation among some of the best surgeons in the city. As resident physician at the New England Hospital, she has already performed many important surgical operations. A case of vesico-vaginal fistula was published in your columns some months ago. Last fall, while on a visit to Boston, Dr. Dimock showed me the photographs of another hospital patient, from whose neck she had removed a large sarcomatous tumour. The operation had been performed in the presence of the students of the hospital and of Dr. Cabot, consulting surgeon. After reading the record of the case, I mentioned a precisely similar operation that I had seen performed by Richet in the Clinique at Paris, and the lecture, in which he described the great difficulties of removing a tumour deeply imbedded in so dangerous a locality. The professor had seemed not a little proud of his own success in coping with these difficulties, and had taken care that a numerous auditorium should witness his triumph. At this Dr. Dimock laughed, and said, "I was asked why I had issued no invitations, but I had forgotten all about them." She added, "Indeed I have too little personal ambition to care who sees, when I am once assured my work is well done." The remark was characteristic of the modesty and simplicity that distinguished the young surgeon. She was as fresh and girlish as if such qualities had never been pronounced by competent authorities to be incompatible with medical attainments. She had, indeed, a certain flower-like beauty, a softness and elegance of appearance and manner, such as is abundantly lacking in the women most eager to denounce surgical accomplishments as outrageously unfeminine. I have wondered whether she did not resemble Angelica Kaufman. Underneath this soft-

ness, however, lay a decision of purpose, a Puritan austerity of character, that made itself felt, though unseen. "She ruled her hospital like a little Napoleon," said a lady who had been there under her care. The ideal steadfastness, which is only possible in characters of this kind, was shown to me at my first interview with her, when she came—a girl scarcely out of her teens—to Paris, on her way to Zurich. We urged her to spend a few days in the capital, for the sake of the recreation to which American students usually consider themselves entitled before they settle down to their studies. Miss Dimock alone refused, for the reason, which she gave with the utmost frankness, that she had been obliged to borrow money in order to prosecute her studies, and should not feel justified in spending a cent of it for amusement or sight-seeing. She put forward all amusements into the future, until she should have won her university degree, and should have fulfilled a pledge of hospital service in Boston. Towards this horrible voyage of April, 1875, converged the pleasurable anticipations of nearly seven years. Among all the bright lives that have been engulfed in this dreadful shipwreck, none is more valuable than hers. Perhaps no woman's life of equal social value has met this tragic fate, since the body of Margaret Fuller was washed ashore on the western coast of the Atlantic.'

THE DISCUSSION ON FERMENTATION IN THE FRENCH ACADEMY.

The discussion on fermentation in the French Academy of Medicine is worthy of a passing notice, in view of the recent debate at the Pathological Society. We may best seize upon the salient points of the discussion, by concentrating our attention upon one of the brilliant speeches delivered by M. Pasteur, the distinguished author of the germ-theory of fermentation, and by noticing the objections urged against his arguments by his critics. It is admitted on all sides that germs cannot penetrate under ordinary circumstances through the shell of a common hen's egg, and this renders it very probable that experiments on eggs will lead to important results in determining the part played by organisms in the production of fermentation and putrefaction. M. Gayon has been for some time conducting experiments on eggs in M. Pasteur's laboratory, and under his superintendence; and the latter thought that the results obtained greatly favoured his own views. M. Pasteur asserted that, in every putrid egg examined by M. Gayon, organisms were found in large numbers. On the other hand, M. Colin denies the constant association of organisms with putridity in the eggs. In eggs which were examined by them together in M. Pasteur's laboratory, M. Gayon pointed out myriads of organisms which he regarded as bacteria, but M. Colin asserted that the particles he saw were not organisms, but mere specks of albuminoid matter exhibiting Brownian movements. He also affirmed that M. Gayon can only find the constant association of putridity with organisms by a too rigid definition of a rotten egg. M. Gayon, he says, will not call an egg rotten until the smell is so offensive as to show that it is in an advanced state of putrefaction. Hence the constant association of organisms and of putrefaction in this narrow sense, even if proved, does not show that the former are the cause of the latter. Both may be the effects of a prior change in the egg, a change which is independent of organisms,

and which ought to be taken into account, whether it be called putrefaction or not.

If organisms be found in putrid eggs, the next question is, how did they originate? The panspermists (of whom MM. Pasteur and Gayon may be taken as the representatives) say that they have been derived from germs which have penetrated from without; while the heterogenists maintain that they have been evolved from within.

M. Gayon thinks that germs may gain access into the interior of the egg in two ways; 1. By passing up the oviduct and reaching the egg before the shell is formed; 2. By passing through the shell under special circumstances. The arguments upon which he relies to show that germs penetrate in the first way are, that organisms have actually been observed in the lower end of the oviduct, and that spermatozoa must pass up in order to gain access to the egg. On the other hand, the unreliable nature of these arguments was pointed out by M. Colin. With regard to the second mode, M. Gayon says that, although germs cannot pass through the shell under ordinary circumstances, yet, by altering the pressure from the exterior to the interior, he has succeeded in making bacteria pass through in large numbers. He placed an egg in a vessel full of water, and put it under the exhausted receiver of an air-pump. The result was that gas became disengaged at various points in the shell; and on re-establishing the atmospheric pressure, water, carrying with it numerous bacteria, when they were present, penetrated through the pores of the shell. M. Colin replied that the conditions of the experiment were such as to form cracks in the shell for the admittance of both water and bacteria.

The next question with regard to the putrefaction of eggs which was hotly contested was, whether all eggs become putrid after a shorter or longer time. If putrefaction of eggs be an exceptional event, then it is more likely to depend upon the accidental introduction of germs from without; while if it is a constant and never-failing occurrence, it must depend upon general causes, and will most probably be of the nature of a chemical change independently of organisms. It is not surprising, therefore, to find the panspermists declare that only a small proportion of eggs putrefy, and the heterogenists that all eggs become putrid. M. Pasteur says that in a large number of eggs kept by M. Gayon for a long time putrefaction was an exceptional event. M. Gayon, according to M. Colin, found that from 33 to 75 per cent. of the eggs became putrid; and this shows that the event is not so exceptional as M. Pasteur asserted; and even this number would be largely increased but for M. Gayon's restricted definition of a putrid egg. But if to the eggs which had putrefied were added those which had become mouldy, those which were altered by the alcoholic and acid fermentations, those in which crystals of tyrosine had developed, and those which were mummified, and in which the embryo was macerated, the percentage of the eggs which had undergone changes closely allied to putrefaction was so largely increased, that very few sound eggs were left. Even M. Colin admitted that a few eggs were still left which had not undergone a change; and M. Pasteur triumphantly declared that he could exhibit eggs which were kept upwards of three years, and which were now perfectly unaltered. His opponent, however, maintained that these have been preserved from putrefaction only because they were kept at an uniform temperature of 77° Fahr.,

and that all of them would have putrefied had they been kept at a temperature of 104° Fahr. He also said that, if eggs be placed under the hen so that their embryos begin to develop and then withdrawn, so that the embryo dies, all of them will putrefy. Nay, even if they be shaken so that the white and yellow are mixed, every one without exception will putrefy. These proceedings do not alter the shell, and therefore it cannot be supposed that germs have penetrated; and yet all the eggs so treated will undergo putrefaction; and this shows that the change in question depends upon general causes and not upon the presence of organisms.

Such, then, are the main arguments and replies of the advocates and opponents of the germ-theory respecting the putrefaction of eggs, and we do not see that any definite result has been obtained, or that victory can be claimed by either of the combatants. The assertions and counter-assertions respecting the presence of vibrios in ammoniacal urine were similar in principle to those respecting the putrefaction of eggs, and are equally barren of definite results, and they need not, therefore, detain us.

Probably the most interesting part of the discussion was elicited by a question put by M. Bouillaud to M. Pasteur, the reply to which led the latter to give a graphic and eloquent description of the successive changes and fermentations which occur when a quantity of grapes are placed in a vat and exposed until the whole of the organic matter is returned to the atmosphere in the form of various gases, and the inorganic to the soil in the shape of various salts. M. Pasteur's general conclusion is, that there are two kinds of organic ferments: 1. Organisms which live and multiply in the absence of air, and take their oxygen from organic solutions, such as that of sugar; 2. Organisms which fix free oxygen upon the organic matter and burn it as surely though more slowly, as it is burnt by fire. He admits that there is a third class of ferments, such as *diastase*, which oxidise animal matters directly, without the intervention of organisms. Of these three ferments, however, the first is, according to M. Pasteur, the only true ferment. 'La fermentation est liée à la vie sans air.' M. Pasteur's critics were not slow to notice that this formula is incompatible either with known facts, or with the theory of fermentation which regards microscopic organisms as the cause of the chemical change. After noticing the researches of MM. Lechartier and Bellamy on the formation of alcohol and carbonic acid in fruits without the intervention of microscopic organisms, M. Poggiale said that M. Pasteur's definition of fermentation would comprehend processes set up by the elementary cells of the higher plants and animals, as well as those caused by certain unicellular organisms. Instead of denying this, M. Pasteur accepted the position, and claimed the facts brought to light by the researches of MM. Lechartier and Bellamy as a striking proof of his theory; only his theory, in order to include the new facts, would now require to be enlarged and extended. In short, he has now virtually abandoned the *germ*-theory, and has advanced what may be called a *vital*-theory of fermentation. According to this new theory, whenever we have life carried on in the absence of free or dissolved oxygen, we have fermentation, and whenever we have fermentation, there is life in the absence of air. Hence every mutation of tissues which takes place in the absence of free oxygen is essentially a fermentation.

M. Pasteur now passed on to apply this theory to the elucidation of the nutritive changes which occur in the higher organisms. He first related a very interesting observation made on yeast-cells, which are true ferments living in the absence of air. But if these cells be entirely deprived of either free or dissolved oxygen, they cease to multiply actively, become granular, and many die, everything showing a lowered state of nutrition. But if a small quantity of oxygen be allowed to gain access to the cells, even such a small quantity as would be dissolved by pouring the fermenting liquid from one vessel into another, the activity of the cells becomes greatly increased, they multiply more rapidly, lose their granular aspect, and act much more energetically as ferments, and this activity continues for a long time without any fresh supply of oxygen. This observation shows that, although free oxygen is not a necessary element to the nutrition of the yeast-cells, yet it does give a certain impulsion to their vital activity—in other words, stimulates the irritability of the cells. M. Pasteur thinks that essentially the same thing occurs in the tissues of the higher animals. Cell-life is constantly carried on without either free or dissolved oxygen, and hence results true fermentation; while in the short interval between two inspirations, the cells have access to free oxygen, which acts as a stimulus to their nutrition. Animal heat, therefore, owns two main sources; that produced by the combustion of free oxygen, and that resulting from the decomposition of fermentable matters. Such, then, is M. Pasteur's new theory of fermentation, and his application of it to physiology. But, although he regards the process set up by living units in the absence of air as the only true fermentation, yet he admits that microscopic organisms, such as bacteria which live on the surface of organic solutions, and to whose nutrition free oxygen is essential, are ferments; and if they be, surely the process set up by them is essentially a fermentation. If, then, the process set up by living units, which require for their nutrition the presence of free oxygen, be a fermentation, as well as that caused by those which live in the absence of air, life itself is, as one of M. Pasteur's critics pointed out, only an universal fermentation. But M. Pasteur also admits that chemical agents which oxidise organic matters directly, such as diastase, are ferments; and the process set up by these also must be a fermentation. By implication, therefore, he allows that fermentation is a general process, including various varieties, which may be grouped under three principal kinds. In short, the words 'ferments' and 'fermentation' are used both in a generic and in a specific sense, and frequently even the same speaker does not consistently employ them in any one sense. If distinct names were given to all the processes which may be embraced under fermentation in its generic sense, and a definite sense given to those names, it would be seen how largely the debate in the French Academy, and the recent debate on the germ-theory at the Pathological Society, turned upon the ambiguous use of words.

JAMES ROSS, M.D.

DECOMPOSITION OF TALLOW.—According to the *Revue Scientifique* of May 22, M. Marticorena, a manufacturer of San Sebastian, has observed that tallow is easily decomposed by salt water. Having bought some tallow which had been for some time immersed in sea water, he had it washed and pressed, and thus obtained stearic and oleic acids.

ANATOMY AND PHYSIOLOGY.

CALORI ON SOME BURSAE MUCOSÆ CORRESPONDING TO THE TRACHEA, LARYNX, AND CERTAIN ADJACENT PARTS.—Professor Luigi Calori describes in the *Memorie dell' Accademia delle Scienze dell' Istituto di Bologna* (series iii. vol. v. 1874) certain synovial sheaths which he has found within the thorax.

One form of bursa is described as lying between the aortic arch and the lower extremity of the trachea; and the author terms it *aortico-tracheal*. It is situated behind that portion of the arch of the aorta from which the three principal arterial trunks arise. It is rather large, reaching about as high as the corresponding portion of the arch of the aorta, and being as wide as the lower end of the trachea. It is so firmly united to the aortic arch that it cannot be separated; it is less adherent to the trachea, from which it is easily stripped off; and is enveloped in abundant loose connective tissue. In front of this bursa Dr. Calori has sometimes found a second—an arrangement analogous to the prepatellar bursa. In some rare instances, above the aortico-tracheal bursa, towards the left side, is another small bursa corresponding to the left common carotid artery. Dr. Calori observes that, when the pericardium is prolonged behind the aortic arch, especially towards the left, the aortico-tracheal bursa mucosa is smaller. The bursa was met with in thirteen out of forty bodies. Dr. Calori regards it as facilitating the movement of the aortic arch on the trachea.

The second bursa mucosa is situated between the trachea and the isthmus of the thyroid body, and is met with a little more frequently than the aortico-tracheal bursa. It is found immediately below the isthmus of the thyroid body, and insinuates itself somewhat between that isthmus and the trachea, and sometimes ascends nearly to the upper margin of the isthmus. It is covered anteriorly by loose connective tissue. Its union with the corresponding tracheal rings and with the posterior aspect of the isthmus is close. It varies in size; but its transverse diameter is generally a little below, and its vertical a little above one-third of an inch. It is usually single; but in one case, in which the isthmus was incomplete, it was double; the two bursæ lay side by side, separated in the middle line by a septum. Dr. Calori purposes to call this bursa the *thyro-tracheal*. Its evident function is to diminish the friction between the trachea and the thyroid isthmus.

The third bursa lies between the crico-thyroid muscle and the thyroid gland, and is also in contact with the upper rings of the trachea. It may be called *crico-thyroid-thyroid*. It is found on both sides, and does not belong to the isthmus, but to the lateral lobes of the gland. It is very thin where it covers the external surface of the crico-thyroid muscle; but becomes somewhat thicker where it covers the cricoid ring, the upper ring of the trachea, and the corresponding portion of the internal surface of the lateral lobe of the thyroid gland. Superiorly and internally it is in relation with a branch of the superior thyroid artery, from which the crico-thyroid artery proceeds. It serves to remove the slight difficulty which the supraposition of the thyroid gland would place in the way of the free action of the crico-thyroid muscle.

In some cases the bursæ are represented merely by loose and rather soft connective tissue. They present the ordinary structure of bursæ mucosæ or synovial sheaths.

The paper is illustrated by five lithographic figures.

A. HENRY, M.D.

BOCK AND HOFFMANN ON DIABETES.—C. Bock and F. A. Hoffmann (Berlin, Oliveri, 1874, 8vo, pp. 70) communicate the results of their experiments on the normal quantity of sugar in blood of rabbits. Well nourished animals, simply tied down, always showed in their blood taken from the heart or from an artery, from 0.07 to 0.11 per cent. of sugar, which was estimated by Fehling's solution. Only when artificial respiration was kept up by pressure on the abdomen (on the liver) did the quantity rise in the cardiac blood to 0.2 per cent. By an ingenious experiment, the authors show that the sugar found arises from the liver and from the lymph of the intestinal canal. From other experiments, it is very probable that glycosuria depends upon increased activity of the liver. After puncture of the fourth ventricle, the quantity of sugar in the blood rose abnormally high during the first hour (to 0.29 per cent.). If in the second hour, where already sugar was distinctly found in the urine, the liver was excluded, in six out of eight experiments the diminution of sugar was quite apparent; and the increase of sugar after the puncture is not to be ascribed to diminished destruction of sugar in the organism, but to a greater supply in the blood, probably arising from the liver.

LEWIN ON THE PRESENCE OF BILE-PIGMENTS IN THE URINE.—L. Lewin (*Centralblatt für die Medicinische Wissenschaften*, no. 6, 1875), remarks that Gmelin's reaction sometimes fails when instituted in the ordinary way. In a case of icteric urine, the author could not get satisfactory results, either by Huppert's method, or by the ordinary Gmelin's reaction, though by other signs it was very probable that the urine contained a large amount of bile-pigment. The urine was allowed to stand in ice for twenty-four hours, when a deposit, intensely reddish brown in colour, separated, which proved to consist of uric acid salts. On applying Gmelin's test to a solution obtained by gently warming the sediment, the characteristic reaction was at once obtained. The filtrate did not give the reaction. The bile-pigment was in this case united either mechanically or chemically to the urate. The author, therefore, recommends the precipitation of the uric acid salts by the action of cold, and then the application of Gmelin's test to the dissolved sediment.

HOPPE-SEYLER ON A SIMPLE PREPARATION OF URINARY PIGMENT FROM HÆMOGLOBIN.—Hoppe-Seyler (*Berichte der deutschen Chemischen Gesellschaft*) formerly observed that on heating hæmatin in alcoholic solution with tin and hydrochloric acid *i.e.* by reduction, a splendid colouring matter is formed. This colouring matter is identical with hydrobilirubin (Maly) and urobilin (Jaffe). Hæmoglobin itself similarly treated yields the same colouring matter, and it is shown that urobilin is a changed decomposition-product of hæmoglobin, and that bilirubin and biliuridin are intermediate stages in this transformation. The quantity of urobilin excreted within a certain time is the measure of the destruction of red blood-corpuscles.

WM. STIRLING, D.Sc., M.B.

PATHOLOGY.

DÉJÉRINE ON THE CONDITION OF THE SPINAL CORD IN A CASE OF TALIPES EQUINUS.—In the *Archives de Physiologie* for March and April, M. Déjérine describes the microscopical appearances found in the spinal cord of a well marked case of talipes equinus. After staining and clearing the sections in the ordinary manner, the following lesions of the grey matter of the vessels and of the neuroglia were noticed. About the lumbar enlargement, the right side, the same as that on which the deformity existed, the exterior portion of the anterior horn of grey matter was found to take the colour of the carmine more deeply than the rest. The nerve-cells, with the exception of one or two that had lost their processes, and were much atrophied, had disappeared from this portion of the horn. The vessels here, in comparison with those on the left side, were much increased in number, and their walls thickened. In the rest of the horn the structure was normal. These alterations were most marked at the middle of the lumbar enlargement; from that point, both upwards and downwards, they gradually disappeared, the dorsal region not being affected. The posterior horn of the grey matter was normal.

In the same portion of the cord, the white substance had undergone sclerosis of the right antero-lateral column. The lateral column also presented a band of cortical sclerosis about 0.6 millimètre (0.024 inch) in thickness. This condition of the white matter occupied the whole of the lumbar region, disappearing, like the lesion of the grey matter, above and below. The nerve-roots springing from this part were found to contain many tubes wanting in myeline; others had their myeline, but were much reduced in volume.

An examination was also made of those muscles which were affected in this case, the anterior muscles of the leg and the peronei. These were found to have undergone simple atrophy of the primitive bundles, the striation being preserved. There was also an increased production of connective tissue.

The points which the observer of this case thinks most important are the existence of the band of cortical sclerosis, and the marked limitation of the lesion in both the grey and the white matter.

W. KESTEVEN, JUN.

VON BUHL ON A CASE OF TWIN MONSTROSITY.—A female twin monstrosity was exhibited by Professor von Buhl, of Munich, at his pathological-anatomical demonstration on Feb. 6, 1875 (*Erstliches Intelligenzblatt*, no. 9, 1875). It had two heads and two bodies. There was union of the parts from the sternum to the umbilicus; the two breast-bones were fused into one, to which the ribs on both sides were attached. There was an umbilical hernia about 2.35 inches in circumference; hence proceeded one umbilical cord, to one placenta, which contained two arteries and two veins, which divided immediately on entry into the foetus. Each had an œsophagus and a stomach, which were fused into one duodenum, from which proceeded one jejunum, which in the region of the ileum formed itself into a wide sac, probably corresponding to the entry to the ductus omphalo-entericus; from this sac proceeded two ilea and colons, one for each individual. Meconium was

only found in one. The two livers were fused together posteriorly. The most important abnormality was the heart. It was evidently two moulded into one. It contained two ventricles, each of which had taken on the functions of a left and a right ventricle; with one auricle, corresponding originally to four auricles. By means of small valvular arrangements it was divided into two, which directed the blood into the corresponding ventricles. There was no septum ventriculorum; from each ventricle there arose one aorta and pulmonary artery. A small ductus Botalli was present on only one side. All the other organs were double. W. C. GRIGG, M.D.

MEDICINE.

KORNMÜLLER ON MELANÆMIA.—The Vienna *Medicinisch-Chirurgisches Centralblatt* for May 14, 1875, gives an account of three cases of pigmentation of the skin after intermittent fever, occurring in the practice of Dr. W. Kornmüller, of Karfreit. He remarks that such cases rarely occur in the Austrian Empire, even in the most malarious districts. The effects of malaria, or the results of exposure to marsh miasms, vary greatly with the particular district in which they occur, with the time of year and the constitutions and hygienic conditions of the patients. Particular epidemics also have their own special characteristics. In one epidemic the majority of cases are slight, easily curable, and of simple type. In another, most of the cases are of a severe kind, and always induce constitutional cachexia. In some epidemics we meet with an unusual number of malignant cases of malarial fever. Imperfect as is our knowledge of the etiology of these diseases, there is much that admits of rational explanation. For example, the malarial fever-district of Isonzothal, surrounded by a gigantic Alpine wall of mountains, is never properly ventilated; whilst the adjacent vast malarious region on the north coast of the Adriatic is thoroughly swept, so to speak, by storms from the south-east and north-east. There Italian colleagues say that pernicious forms are rare, but the malignancy of the malaria in the author's district is shown by three cases of melanæmia occurring in the spring of 1869 in his own practice.

Case I.—A previously robust and healthy young married woman, of the peasant class, came to him in June, 1869, to beg some ointment for the purpose of removing the horrible smutty and swarthy coloration of her skin. Having previously known her, he was greatly surprised at the change. It was the first case of melanæmia he had seen. Her skin was of a dark slaty grey, and on this ground-colour were numerous, thickly strewn, large and small spots and stripes of varying form, of brownish-black pigment; these were most abundant in the natural flexures of the skin, rendering it almost totally black in these situations, most conspicuously so at the wrists and ankles. The mucous membranes were of a light ash-grey; both liver and spleen were enormously enlarged, but the urine was free from albumen. The patient had suffered six weeks previously from a very severe intermittent fever of quotidian type. After three weeks use of domestic remedies the paroxysms ceased, but she still had occasional shiverings, great weakness and pallor. Fourteen days before Dr. Kornmüller saw her, she first noticed the pigmentation, which grew worse day by day. She

was now extremely weak, unable to stand, much emaciated, feverish, and without appetite; pulse 90. From noon to 10 P.M. her temperature rose from 99.4° to 102° Fahr.

Dissatisfied at not getting promise of immediate restoration to health, she once more resorted to quackery. After four weeks of this, she again sought qualified advice. The pigmentation and cachexia were intensified. Six weeks of iron, quinine, and liberal diet stopped all the febrile processes; her strength returned; there was no further destruction of blood-discs; and she once more enjoyed life, and did her work; sensibly renouncing her hopes of recovering the former brilliancy of her complexion.

The second case was in a yeoman, aged forty, from Pelfery, over the Italian border, and occurred in the same month. His skin was of the same dark colour, and he had enormous spleen and liver, after a short attack of severe intermittent of quotidian type. His urine was free from albumen. Iron, quinine, and good diet restored him to health and strength, but the colour remained unaffected.

The third case, a lad of a village on the Austro-Italian frontier, sickened at the beginning of May with a pernicious fever, which seems, from the imperfect history to have been of remittent type. Four weeks afterwards, cachexia set in, with oedema of joints. After some time he became weaker and weaker, his legs began to swell, and the skin to become pigmented. Day by day he grew darker. His liver and spleen were enormously enlarged; he had slight catarrhal bronchitis, and his urine contained much albumen. Iron, quinine, and good diet restored him to health, but his skin remained dark as before.

Dr. Kornmüller believes that iron is a specific for malarial anæmia, as quinine, in large doses, is for the malarious poison; but he thinks we are powerless to restore the skin to its pristine colour; for although we know the cause to be the breaking up, in large quantities, of red blood-discs, and the deposition of their hæmatin as pigment, we know no means which will produce absorption of this pigment.

[Has the constant current, say four or five cells, and tepid bathing, ever been tried?—*Rep.*]

W. BATHURST WOODMAN, M.D.

MILFORD ON CHOLERA TREATED WITH SUBCUTANEOUS INJECTION OF MORPHIA.—Dr. F. Milford relates the following two cases in the *New South Wales Medical Gazette* for March.

Case 1.—About 3 A.M. on the morning of November 23, 1874, I was called to Paddington, to see a lady whom I had been in the habit of attending for several years before. She had gone to bed about eleven o'clock, after partaking of a light supper, and about twelve o'clock complained of pain in the stomach. This symptom was soon followed by severe vomiting and purging. When I arrived, severe pain in the stomach, rice-water stools, coldness of the extremities, and periodic attacks of vomiting coming on at intervals of about ten minutes, were the most conspicuous symptoms. Upon ascertaining the exact nature of the case, I gave about half a drachm of laudanum and a tablespoonful of brandy mixed with half a wineglassful of water to my patient, who, immediately after swallowing it, rejected it by vomiting. I then gave, through the subcutaneous syringe, thirty minims of a solution of

morphia, which contained one grain of the muriate. The effect was immediate; the diarrhoea and vomiting directly ceased, and the patient, in about half an hour's time, fell off into a quiet and gentle slumber. 11 A.M. I saw her again, when I found that she had slept during the interval between this and my previous visit. There being still a slight inclination to vomiting and purging, I gave her one-third of a grain of muriate of morphia in aqueous solution subcutaneously. 8 P.M. On seeing her again at this time she stated that she felt quite well; that the purging and vomiting had quite ceased; that the epigastric pain had left her; but that she felt slightly hot and uncomfortable. From this time forth she progressed favourably, and although somewhat feverish, the utmost precautions having been taken by good nursing and diet, she rapidly recovered, and was, in the space of a fortnight, able to take a drive into town.

Case 2.—On Saturday, January 23, 1875, I was called, at 6 A.M., to see Mr. H., aged twenty-four. I found him in a cold sweat, pulse scarcely perceptible at the extremities, complaining of pain in the epigastrium, and constantly vomiting. He also stated that liquid motions were frequently running away from him. He was evidently in the collapsing stage of cholera. I returned home, obtained my subcutaneous injection syringe, and injected one grain of morphia in aqueous solution under the skin over the epigastrium. This was followed by most beneficial results; the diarrhoea ceased at once; the vomiting also became less; and in about half an hour afterwards, heat having returned in the extremities, the patient fell off into a quiet doze which lasted about two hours. About 1 P.M. I found the extremities warm, the pulse 100, skin dry and hot; vomiting continuing, but not so incessant; diarrhoea entirely ceased. I administered one-third of a grain of morphia again subcutaneously.

January 24. I saw him again twice to-day, and directed that a mixture containing nitrate of bismuth and morphia, should be given every four hours, as the vomiting still continued; light and nutritious diet, mutton broth, milk, arrowroot, etc.

January 27. He was much better to-day; the vomiting and purging had both ceased; the temperature was 98°. He had a gentle perspiration all over the skin; tongue clean; pulse 68°.

The administration of medicines either by the mouth or *per rectum* was entirely prevented by the nature of the complaint, and I was compelled to fall back upon the hypodermic injection of morphia; and now so satisfied am I with its use (having lost some cases of cholera in Sydney before where it was not used) that I shall exhibit it *cateris paribus* in every case threatening life for the future, unless I see some good cause why the remedy given in this form should be discontinued.

DE LA ROCHE ON PHTHISIS AND CLIMATE.—In a pamphlet issued from Pau (1875), Dr. Cazenave de la Roche combats some of the conclusions of Dr. C. Theodore Williams in his recent work on Phthisis. He first asserts that the application of figures in the practice of medicine is a method subject to serious mistakes, and which ought to be rejected as unphilosophical. It is not that they are elastic only; they do not take into account the individuality of the patient classed under any heading. While Dr. Williams says, 'the duration of the disease was calculated as well as the influence of the age,

sex, family disposition, and origin,' Dr. de la Roche incisively remarks, 'The form he does not mention.' Then he proceeds, 'Let us take two phthisical patients, one torpid, the other erethetic; and suppose we give the alkaline waters of Ems to the former, the sulphurous waters of Eaux Bonnes to the other, what will happen? A disastrous effect in both cases. Through its alkalinity the Ems water will diminish the plasticity and tonicity, already greatly reduced, of the blood of the torpid patient, whereas Eaux Bonnes, through its exciting properties, will exaggerate beyond measure the pyretic condition of the erethetic one; the consequence being in both cases the acceleration of the tuberculous progress. Must we then conclude that the waters of Ems and Eaux Bonnes are contraindicated and fatal in the treatment of tuberculosis? Certainly not. Who can prove, he asks, that the tuberculous patients mentioned by Dr. Williams as having been so seriously injured by their stay at Pau, Rome, and Madeira, did not belong to the category of the torpid patients; whereas the phthisic, whose condition was made worse under stimulating climates, were not erethetic tuberculous?' De la Roche attaches much importance to the adoption of certain places and climates to the form of the tuberculous affection in every case.

J. MILNER FOTHERGILL, M.D.

CORRAL ON THE TREATMENT OF TYPHOID FEVER BY QUININE.—The *Genio Medico-quirurgico* for March 15, 1875, contains the records of several cases of typhoid fever successfully treated by sulphate of quinine. In one case the patient was a woman, aged forty, who, one month after her husband's death, presented herself all the symptoms of the same disease. The usual treatment not having given satisfactory results, Dr. Corral administered sulphate of quinine in small doses for several days. This was followed by a great improvement in the general symptoms. The pulse was 98°, and the temperature nearly normal. Quinine was again employed, and its use was followed by a relapse which presented all the characters of intermittent fever. The same treatment was employed against the access, and the patient, after having had three new paroxysms of intermittent fever, entered rapidly on convalescence.

M. Corral has often employed quinine in cases of nervous and adynamic forms of typhoid fever. According to his experience, this alkaloid modifies the temperature and febrile state, and gives the disease the intermittent type.

TORRES ON INTESTINAL OBSTRUCTION SUCCESSFULLY TREATED BY GASEOUS ENEMATA.—Dr. Bernardino Torres, of Alcazar de San Juan, publishes the following case in the *Siglo Medico* for April 4, 1875.

Francisco Gonzales, aged eighteen, shoemaker, had typhoid fever, and was subject to frequent attacks of indigestion. On February 19, after much indulgence in a common aliment called *la cuaresma*, he was suddenly seized with a sharp pain over the abdomen and was unable to work. He went to bed and the symptoms increased. Paroxysms of abdominal pain were immediately followed by vomiting, which continued for three days and nights without ceasing, and in spite of soothing applications, narcotic enemata, and mixtures. On February 23, the patient was much worse, and vomited some yellow faecal matter; the abdomen was

ympanic and distended, but no tumour was discoverable; the extremities were cold, and the pulse scarcely perceptible. The patient, however, was a little relieved by a tepid bath, and the application of an enema with belladonna. On February 25, the face was sunken and pallid. The bowels were not open in spite of an energetic drastic treatment. A gaseous enema of bicarbonate of soda eight grammes, and tartaric acid four grammes, was prescribed. The general state was slightly improved the following day, and the vomiting decreased, but the bowels were not moved. The same enema was given three times a day during a week. The abdomen was smaller and the pain more supportable, but vomiting of faecal matter still continued. On March 4 the patient was again much worse. Another gaseous enema was prescribed, bicarbonate of soda thirty grammes and tartaric acid fifteen grammes. Its administration was followed by a sudden cry, retching and exhaustion, after which it was at once expelled, and a large quantity of faecal matter passed. The same enema was again given four hours later, and produced copious fluid stools. On the following day the vomiting and pain had ceased, and the abdomen was much smaller. On the 10th, the patient was quite out of danger.

A. LUTAUD, M.D.

RECENT PAPERS.

On the Minor Signs of Gout in the Nervous System and Genito-Urinary Organs. By Sir J. Paget. (*British Medical Journal*, May 29.)

On Treatment of Headache from Organic Intracranial Disease. By Dr. Moxon. (*Lancet*, May 29, 1875.)

On a Form of Urohematuria. By Dr. J. K. Spender. (*Medical Press and Circular*, June 2.)

Case of Hysteria in the Male. By Dr. Bonnemaison. (*Archives G n rales de M decine*, June, 1875.)

DISEASES OF CHILDREN.

SINKLER ON THE PALSIES OF CHILDREN.—Dr. Sinkler (*American Journal of Medical Sciences* April, 1875) gives an analysis of a hundred and forty cases of the various forms of paralysis met with in childhood. Of these eighty-six were instances of so-called essential paralysis, twenty-three of cerebral hemiplegia, while the remainder included cases of several less important varieties.

With regard to the eighty-six cases of essential paralysis, Dr. Sinkler's observations show the following results. 1. They were almost equally divided between the two sexes, forty-two occurring in boys, and forty-four in girls. 2. Age exercises an important influence. In seventy of the eighty-six cases the attack occurred between the age of six months and three years, and in no instance under six months; while in forty-one it occurred between the first and second years, and in twenty between the second and third; 3. The season of the year plays an important part in the development of the disease. The time of year in which the affection commenced was noted in fifty-seven cases, and in all but ten of them the attack was found to have taken place between the months of May and September, *i.e.*, during the hot weather. 4. The attack may come on suddenly or gradually, without any previous symptoms, or it may follow a well-marked feverish attack, with vomiting, or convulsions, or symptoms of cerebral or spinal injury, or some acute disease. 5. Statistics of the

different limbs affected show, amongst other points, that Niemeyer's statement that this form of palsy is never strictly unilateral is erroneous. 6. In no case was there any paralysis of the bladder or rectum. 7. In all cases the sensibility of the affected muscles to faradisation was impaired or destroyed. 8. In nearly all the cases the children were otherwise healthy. 9. Prognosis was found to be favourable, in proportion to the earliness of the stage of the disease in which it first came under treatment. 10. Treatment consisted in leeching and counter-irritation to the spine at the first onset, with iodide of potassium; in the later stages strychnia, with shampooing and the slowly interrupted galvanic current. It was ascertained by experiment that, while galvanism raised the temperature of a palsied limb only $1\frac{1}{2}^{\circ}$, manipulation elevated it from 8° to 10° . Of the twenty-three cases of cerebral hemiplegia, ten were in boys and thirteen in girls. In eleven the left side was affected, in twelve the right. The age varied from three months to eight years. The patients generally were in feeble health. In two cases the affection was congenital; in three apparently due to injury by forceps during delivery; in two it was referred to embolism, and in four to convulsions; but in the majority of cases the cause was obscure, although in many instances assumed to be cerebral h morrhage. W. B. CHEADLE, M.D.

RECENT PAPERS.

On the Indications for and against Tracheotomy in Croup. By Dr. Bouchut. (*Le Mouvement M dical*, January 9, 1874.)

Contribution to the History of Non-Croupal Affections of the Throat which necessitate Tracheotomy. By M. Bergeret. (*Lyon M dical*, April 25.)

SURGERY.

CLEMENS ON TRANSPLANTATION OF SKIN.—In the *Berliner Klinische Wochenschrift*, no. 18, 1875, Dr. Clemens, of Rudolstadt, gives the results of some observations made on a case in which it was necessary, by reason of the extent of raw surface, to transplant about 120 pieces of skin. The subject of this case was a young woman aged twenty years, who had been scalded over nearly three-fourths of the surface of the body. The damage on the skin of the trunk seems not to have passed beyond the second degree of scald, but in the legs the epidermis had been quite destroyed, and extensive ulcers formed, from which there was a profuse and continuous discharge of pus. To these raw surfaces pieces of skin were transplanted, at first with no good results, but subsequently, on the application of a strong solution of nitrate of silver to swollen and unhealthy granulations, with complete success. Dr. Clemens found that the grafts placed on flabby granulations grew slightly, if at all; whilst those placed on granulations presenting a healthier appearance grew rapidly, stimulated cicatrization in surrounding parts of the ulcers, and speedily gave rise to the formation of a layer of normal epidermis. It was interesting, Dr. Clemens writes, to observe the behaviour of skin-grafts placed so closely together that their margins were in contact, and the granulations quite covered over. This method was practised over the tibiae, where the suppuration threatened to lay bare the bone at several spots. The skin-grafts,

thus placed in contact, united very soon and protected the bone. Where a graft had been placed on a lower level than its neighbours, the evenness of the epidermis soon became restored, the small depression being filled up. In many of the grafts there was excessive growth of epidermis from the surface, and the centres of the growing piece of transplanted skin were covered by deposits of a soft sebaceous material, not unlike that found on the surface of the fœtus. In instances of this kind, the deposit of sebaceous material bore an inverse relation to the growth of epithelium at the margin of the graft. This case afforded opportunities for observing the influence exerted on the skin-grafts by the prolonged contact of water, as it was thought necessary to keep the trunk and lower limbs of this patient in a bath for several days and nights. It was then found that grafts applied but three or four days previously, soon died; whilst those that had been growing on the ulcers for seven or eight days before the use of the bath became arrested in growth, though they still maintained their vitality, and threw out on their surfaces masses of soft and white material, in which, on microscopical examination, epithelial cells were to be found. The grafts in this case were taken from many volunteers of both sexes, and mainly from the arm. For cutting away the piece of skin, Dr. Clemens prefers a dry knife to one moistened with water or smeared with oil. The graft taken with a dry knife can, it is stated, be more readily dealt with, and more rapidly takes root and grows. The smaller the portion of skin removed, the sooner will it adhere and the more quickly will it grow.

W. JOHNSON SMITH.

WEIR ON MANUAL EXPLORATION OF THE RECTUM.—We have, on several occasions, referred to the plan, first practised by Professor Simon of Heidelberg, of exploring the interior of the rectum by means of the whole hand introduced through the anus. Simon's example has been followed on the continent to some extent, but it is in the United States that the proposal seems to have been most favourably received, and notices of the operation in the American papers have been of late somewhat frequent.

The *New York Medical Record* (March 20) contains an instructive paper by Dr. Robert F. Weir, in which he calls particular attention to the risks of the operation. The caution does not appear to be unnecessary, for some of the American surgeons seem almost to have surpassed the originator of the operation in boldness. Thus we are told that one New York surgeon passed his hand and arm into the rectum and descending colon to the extent of sixteen inches; he was then able to touch the inferior border of the liver, and his fingers, when projected forwards, could be felt through the abdominal wall four inches above the umbilicus; and that another surgeon, before performing lumbar colotomy, explored the rectum in this manner to a distance of twelve inches, 'his forearm was too large to go further,' as though the limit of exploration was the possible dilatability of the anus. In his first accounts of the operation, published in Langenbeck's *Archiv für Klinische Chirurgie*, and of which a summary appeared in the *LONDON MEDICAL RECORD* of February 12 and August 20, 1873, Professor Simon states that it is not safe to introduce the greatest circumference of the hand, i.e., the knuckles, to a greater depth than seventeen to nineteen centi-

mètres (seven to seven and a half inches), on account of the great narrowing of the calibre of the bowel, which commonly occurs about this situation. With this dictum, which was based on careful measurements of many recta, and on numerous experiments on the dead subject, Dr. Weir quite agrees, and he mentions two recent American cases, in which rapidly fatal collapse followed the operation, and in which laceration of the rectum and of the peritoneum was found to have occurred. In one of these cases the hand was introduced to the extent of twelve inches, and in the other to eleven inches, measured to the tips of the fingers. The operation is most useful as a means of ascertaining the nature and position of strictures of the bowel, and it is just in these cases that most caution is necessary; for when the obstruction is situated high up, and has existed for some time, the rectum not only becomes contracted, but its coats become weaker and less dilatable than in health, and but little force is required to produce serious mischief. This was no doubt the cause of the serious results just referred to.

J. W. LANGMORE, M.D.

BRICKELL ON RUPTURED PERINÆUM.—Dr. Brickell, Professor of Obstetrics and Diseases of Women in the Charity Hospital Medical College, New Orleans (*American Journal of Medical Sciences*, April, 1875), considers all the usual operations for the restoration of the perinæum 'unsurgical' and unsatisfactory. He says that interrupted sutures exert too much antero-posterior traction and cause 'corrugation of the denuded surfaces,' and consequent reduction of their areas; hence the wedge-shaped perinæum is not restored, but merely an abrupt wall partially closing the gap between the neck of the bladder and the anus. In many cases, too, the soft vaginal tissue is partly cut through in the first few hours, and thus only a portion of that included in the sutures at the time of operation unites finally. The same results occur to some extent with clamps or quills, with the additional evil of more or less sloughing from the pressure. Dr. Brickell has contrived steel 'perineal stays,' which he figures. The stays are made of steel and nickel plated, the internal end being in the form of a cap and movable. The deep sutures having been passed as usual, the stay, which is forked at each end, is placed between the denuded surfaces, the movable fork being pressed against the deep or vaginal part of the suture, while the external ends of the suture are tied over the opposite fork; thus the denuded surfaces are kept in position by indirect lateral pressure: one or more stays may be used as required and a few auxiliary sutures if necessary. The stays are removed on the fourth, fifth, or sixth day. The suture being cut, the long external part of the stay is drawn out and the small cap is left free in the vagina; it is well to steady the internal end with a pair of curved forceps while withdrawing the other part. He appends four cases. He has not found any trouble from fistulæ in the track of the stay, and recommends catgut in preference to silver wire for sutures. In a postscript he gives a fifth case in which he used nothing but catgut with the stays, the result being excellent.

[This seems likely to be a most valuable contribution to the surgery of the perinæum. All who have tried the ordinary operations will have met with some disappointments, and here we seem to have a rational hope of pretty constant success.—*Rep.*]

J. KNOWSLEY THORNTON.

STIMSON ON A CASE OF MOLLUSCUM SIMPLEX : OPERATION.—During the past year a very important case has been operated on by Dr. Daniel M. Stimson, of New York, and reported in the *New York Medical Journal* for March, 1875. The patient, a young man, aged eighteen, had on the right side of his neck a tumour, which constituted a great deformity. The growth began in early life, and consisted, for the most part, of a double fold of much thickened and hypertrophied skin; it sprang from a line running from a point near the occipital protuberance behind, downward, and forward, to a point on the lower jaw, nearly below the angle of the mouth, and hung down so far as to cover the lapel of his coat. The ear had grown to double its natural size, was very much thickened, and the top of it turned over on itself. The meatus auditorius externus was drawn down by the weight of the ear, very nearly, if not quite, an inch. The growth contained evidently many large blood-vessels and firm nodules, pressure on which caused unconscious spasmodic contractions of the muscles raising the shoulder. The lower jaw and clavicle on that side had never been developed to correspond with the other side of the body, and there was marked drooping of the shoulder. A few years ago, nearly all the celebrated surgeons in Europe were consulted, and advised against operation; only one of them, Billroth, thinking that it might be done, but refusing to undertake it. Dr. Willard Parker was of the opinion, in the spring of 1874, that the growth could be removed with safety, and the result proved the correctness of the decision. The tumour was removed at two sittings, the first on May 28, and the second on October 1. The first operation lasted two hours and a half, and consisted of the removal of the anterior portion of the tumour, by a long and tedious dissection, which exposed the pes anserinus, and also the sheath of the carotid artery, for the space of an inch and a half, and involved the removal of a part of the parotid gland. A considerable amount of blood was lost, but the patient rallied well from the operation, and the wound healed kindly. The second operation lasted about as long as the first, consisted of the removal of the remainder of the tumour, and was not attended by any special difficulty. The hæmorrhage was severe, but the means ordinarily in use sufficed to control it. Microscopical examination proved the growth to be a molluscum simplex. The improvement in the patient's appearance, after its removal, was most marked.

RECENT PAPERS.

- Is Stricture of the Urethra Curable? By W. F. Teevan, F.R.C.S. (*British Medical Journal*, May 29.)
 On the Treatment of Ulcers of the Leg by Circumferential Incision. By Dr. Paul Berger. (*La France Médicale*, May 26, 1875.)
 Case of Necrosis of the Tibia, followed by Pyæmia : Death. (An Objection to the Use of Esmarch's Bandage in Necrosis.) By Dr. Shinkwin and Mr. Martin Howard. (*Irish Hospital Gazette*, June 1.)
 Experimental and Clinical Investigations into the Employment of Temporary Ischæmia. By Dr. Chauvel. (*Archives Générales de Médecine*, June, 1875.)

M. J. DEBY, in making an examination of the contents of the stomach of some mussels (*Mytilus edulis*) bought in the market at Brussels, found thirty-seven species of diatomaceæ, comprising the *Hyalodiscus stelliger*, which had never yet before been found except in Florida.

MATERIA MEDICA AND THERAPEUTICS.

CALDWELL ON DAMIANA.—In the *Virginia Medical Monthly* for May, Dr. J. J. Caldwell of Baltimore describes a new medicinal agent. It is a plant which grows on the western borders of Mexico. The writer is unable to give its technical name and its classification; this much, however, is known about it. The plant does not flourish in the mountains, nor yet very far from the sea. Amidst the gorgeous vegetation of Mexico, the dark green leaves, the small white blossoms of the damiana, and the fragrance of the gum which exudes upon the stem, attract the attention of the traveller. After the annual rains, when vegetation bursts into life, this plant is readily found. In July, when it ought to be reaped, it is most easily gathered. It appears that it is used as an aphrodisiac, and one case is given of an old man, Anclos, who took his damiana tea until he was more than a century old. 'There are a great many such in this country. I do not mean to say or to intimate that damiana does it all, but only this fact, that very many of these old stagers do sire children, as old Anclos did, up to the last, some of them having two or three dozen legitimate, without counting outsiders.' The root possesses the same properties as the leaf. There are two classes of damiana. The best bears a white blossom, and has a small leaf; the other has a yellow blossom and a large leaf, and is found in much larger quantities, but is inferior in every way. Cases are given illustrating its efficacy; one, a man of seventy, was, by its use, restored from the impotence of senectude to the virile powers of earlier life. Sexual anorexia from ill health and mental trouble is equally relieved by the remedy. Impotence of alcoholic origin, or from disease of the genito-urinary organs, also yield to it. The tincture and the fluid extract are the best forms. Dr. Caldwell concludes as follows. 'This remedy seems to have a specific effect upon all the organs of the pelvis, giving increased tone and activity to all of the secretions in that vicinity.'

[In speaking of this communication the *Medical and Surgical Reporter* of Philadelphia, for May 15, advises caution in the matter of credence, and is instituting inquiries among its Mexican correspondents.—*Rep.*]

MINICH ON THE HYPODERMIC INJECTION OF ERGOTIN IN PURPURA HÆMORRHAGICA.—In the *Philadelphia Medical Times*, May 8, Dr. Andrew K. Minich gives an account of a very serious case of purpura hæmorrhagica treated successfully by the subcutaneous injection of ergotin. The condition of the child was very grave, and blood was issuing everywhere, when a grain of ergotin was injected under the skin of the arm. Sponging with infusion of oak-bark was also ordered. Four hours afterwards the profuse vomiting of blood had entirely ceased; but blood still issued from the nose. Another grain of ergotin was then injected. Next morning the bleeding had entirely ceased. He gave another injection. The small spots upon the skin then disappeared. Some fluid-extract of ergot with sulphuric acid and opium was then administered by the mouth. The patient made an uninterrupted recovery. Dr. Minich then proceeds to consider the pathology of purpura hæmorrhagica as read by the

light of this case. He dismisses the hypotheses that the disease rests upon some change in the blood, or that it is due to a condition of fatty degeneration of the capillaries, and gives it as his opinion that the real pathology is vaso-motor paralysis; and that the ergot acts upon the capillaries by causing them to contract, and does good by inducing vaso-motor spasm.

J. MILNER FOTHERGILL, M.D.

GARRIGOU ON THE PYRENEAN WATERS.—Dr. Garrigou (*Journal de Thérapeutique*, May 10, 1875) has, by special modes of analysis, obtained interesting results in many of the waters of the Pyrenees, namely, Aulus, Ax, Barèges, Saint Bois, Eaux Bonnes, Cadeac, Capvern, Cauterets, Eaux Chaudes, Gamardi, Luchon, Ravi, Saint Sauveur, Salies de Bearn, Tremesaygues.

Thus, without mentioning potass, soda, or phosphorus, which occur everywhere, he has demonstrated the presence of lithia, of alumina, of iron, and of manganese in all the waters mentioned above, without exception. Strontium exists at Aulus, Saint Bois, Capvern, and at Tremesaygues.

Copper and arsenic have been found everywhere, (they were not sought for at Salies de Bearn); but it is doubtful whether there is arsenic at Eaux Chaudes. Antimony accompanied the arsenic at Aulus, Barèges, Capvern, and even at Cauterets. Cobalt, the presence of which is doubtful in the sources of Aulus and of Eaux Bonnes, exists certainly in those of Saint Bois, Capvern, Gamardi, and Luchon. There is probably tellurium in the sources of Aulus, and of Capvern, but this is not quite certain. Lead has been found at Aulus, Capvern, Eaux Chaudes, Gamardi, Luchon, and Saint Sauveur. Bismuth has been found only at Luchon. Cesium and rubidium are wanting at Aulus and Ravi, but have been found at Ax, Luchon, Tremesaygues, and the last separately at Eaux Bonnes. Iodine, which is absent at Ravi, occurs at Saint Bois, Luchon, and Salies de Bearn. Bromine has only been discovered at the last of these places. Fluorine exists at Saint Bois, and at Luchon. Finally, chromium is present in the source of Aulus. As for the organic matter, one portion of it behaves like crystalloid substances, and passes through the dialyser; the other part remains on the dialyser, and is like colloid matter. The first sort of it has been obtained at Aulus, Eaux Bonnes, Capvern, Luchon and Ravi. Dr. Garrigou ends by observing that although these rare substances have been detected only in the few springs which he has examined, it does not follow that they may not exist in the many waters which he has not analysed by his processes.

J. MACPHERSON, M.D.

MCBRIDE ON NITRITE OF AMYL IN EPILEPSY.—Dr. James H. McBride, of the Hospital for the Insane at Oshkosh, Wisconsin, publishes in the *Chicago Journal of Nervous and Mental Diseases*, April, 1875, some valuable observations on the action and use of nitrite of amyl in epilepsy. It is stated that epilepsy depends upon a condition of cerebral anæmia induced by spasmodic contraction of the arteries of the brain. The action of amyl is directly antagonistic to this. It causes distension of the cerebral blood-vessels and congestion of the brain. The action of the drug was very prettily demonstrated in some experiments which were made by McBride and Kempster. A portion of the skull of a live full-grown rabbit was removed, so as to expose a considerable surface of the cerebral mem-

brane. After the effects of the anæsthetic used during the operation had passed away, the nitrite of amyl was administered, and its action on the brain observed through the aperture in the cranium, with the aid of a strong lens. In a few moments the vessels of the pia mater became engorged with blood, so that vessels could be seen distinctly which were before invisible to the naked eye; the brain became dark and congested, and so swollen as to protrude through the artificial opening. At the same time the external vessels of the ear were distended with blood. The inhalation being stopped, all these symptoms soon disappeared, and returned as soon as the amyl was administered again. A second experiment of like character yielded precisely the same results.

McBride details several instances in which the nitrite of amyl has been employed under his observation for the treatment of epilepsy. The results were remarkably favourable. The effect of the remedy was immediate, and its efficacy in warding off imminent attacks was particularly striking. The good effect does not appear to have remained, however, after discontinuance of the remedy. The mode of administration consists in dropping ten to fifteen drops upon a piece of cotton, and the vapour is then inhaled.

Particularly favourable results are promised in those cases where the aura is very decidedly marked. A caution is given against employing the nitrite of amyl in certain spurious forms of epilepsy, convulsions which are dependent upon congestions of the brain, where the drug might have a decidedly pernicious effect, through simply aggravating the existing disturbance.

RECENT PAPERS.

- On Dietetic Effects and Results. By Dr. Dauvergne. (*Bulletin Général de Thérapeutique*, May 30.)
Various Uses of Chloride of Zinc. By Dr. Nichols. (*Chicago Medical Journal*, May, 1875.)
On Calabar Bean, and its Alkaloid Eserine. By Dr. Blatin. (*L'Union Médicale*, June 1.)

PSYCHOLOGY.

HUNT ON THE RELATIONS OF THE GENERAL PRACTITIONER TO INSANITY.—In the *New York Medical Record* of April 10, Dr. Ezra Hunt insists upon the importance of some knowledge of insanity on the part of ordinary practitioners. Until of late the consideration of insanity has been quite left out of the curriculum of medical study, and yet, whether he will or not, the early treatment of insanity falls upon the average medical practitioner, and not upon institutional experts. A few days, and sometimes weeks, are necessary to determine the degree of insanity, or the need of transfer, or the case itself is gradual in its development. Some delay often must occur in arranging change, unless the attack is of the exceptional character of raving mania. Yet so important are these days, that they often mark the limit between acute and chronic cases, and determine the ultimate curability of the patient. From the last reports of the two asylums of Philadelphia, of that of New Jersey, and of that of the Commissioners of Lunacy for Massachusetts, it appears that a large proportion of those cases which recover do so within one year after admission, and these are largely of

not more than three months' duration. It is well known that the chances of recovery for cases which have lasted over eighteen months are exceedingly limited. The Massachusetts report for 1874 says: 'If the proper treatment can be applied in the first attack or stage, it is estimated by some that, taking all cases as they arise, from seventy to eighty per cent. can be cured, and others estimate the rate still higher; but if not treated at all, or attempted unsuccessfully, till the disease passes into a chronic state, it is found, as a general rule, that not more than ten per cent. recover. The recoveries are confined chiefly to fresh admissions, or to the acute stage of the disease. Many of the causes of derangement are within the reach of public and personal lay appreciation. Very many cases consist in a yielding of the will, associated with some physical invalidity, which if controlled in time would not get the mastery. There is more room for skilful tact in such cases outside of asylums than in them, and a grander field for prevention than for cure. The private and institutional physician must join closer in this work. The medical student must study more the nerve department of all disease. The whole profession must realise how wonderfully of late years new and valuable remedies have been found available in morbid conditions. Hopefully and heroically the art of prevention must be joined to that of cure, and we should learn to realise the portentous moment of those first early formative days of all physico-mental disease, on our dealing with which so much depends—the prolongation of the malady, its limitation in a few months, its speedy cure, or its irremediable permanency.'

J. MILNER FOTHERGILL, M.D.

RECENT PAPERS.

Treatment of Melancholia. By Dr. Briere de Boismont. (*Journal of Psychological Medicine*, April.)
Opiophagism. By Mr. W. A. F. Browne. (*Ibid.*)

DERMATOLOGY.

BESNIER ON IMPERMEABLE CAOUTCHOUC DRESSINGS.—Dr. Besnier, of St. Louis hospital, publishes a good account of this method of treatment in the *Bulletin Général de Thérapeutique* (Jan. 30, 1875). The application was devised by M. Colson of Beauvais, and had been used by him with great success for several years before he published his paper 'De l'Emploi de la Toile de Caoutchouc vulcanisé dans les Maladies dartreuses' (*Gazette des Hôpitaux de Paris*, Feb. 25, 1869). After he had recommended it to Prof. Hardy in 1866, the latter distinguished dermatologist introduced it into St. Louis, where it is also used by MM. Lailler, Rendu, and Besnier, with great success.* The last of these physicians bases his present report on two years' continuous observation.

The material used is not of great importance. It must be completely water-tight, and thick enough to maintain an equable temperature. Vulcanised India-rubber cloth fulfils these indications best, but wax-cloth, gold-beater's skin, or gutta-percha sheeting may all be used. [The cold-cream paper lately recommended by Dr. Duckworth (*Archives of Dermatology*,

U.S., Jan. 1875) acts no doubt in the same way]. It must be laid *directly* upon the affected surface and kept in contact, but without pressing on it, by a suitable bandage, care being taken to prevent the access of air or the exit of secretions. An ordinary roller is a better application for the fingers and feet than India-rubber gloves and shoes, and the same for the limbs, neck and trunk. Or a sleeve may be made for the arm, a glove for the hand, and confined at the shoulder and elbow or at the wrist by an India-rubber band or a tape. A cap must be made for the head, with a bandage to keep its edges tight, a bag for the scrotum, and a mask for the face. After taking it off it should be carefully wiped, washed in cold water, and dried, before applying it again; the diseased surface should be cleansed by irrigation and powdered, anointed, or left free to the air, according as its condition may demand. This applies to the majority of cases, where M. Besnier finds it enough to apply the caoutchouc during the night, and let the patient go about his business in the day. In severe cases, like general eczema, it is desirable to keep it applied continuously, changing it night and morning.

Without pretending to decide whether the benefit of this treatment depends on protection from contact with air and other irritants, on uniform temperature, or on the effect of the secretions and the exudations of the skin, the author lays little stress on any chemical effect of the sulphur or caoutchouc, and compares the action of the remedy to that of a poultice (or water-dressing). It is therefore generally applicable to inflammatory affections and also to those characterised by itching. Like all treatment it sometimes fails; but this is rare, and only once or twice (in cases of psoriasis) has any harm appeared to result from its use. The only inconvenience is the somewhat unpleasant smell (which soon disappears) and the cold feeling when it is first applied.

The diseases for which M. Besnier particularly recommends this remedy are eczema, impetigo, ecthyma, lichen, and all kinds of prurigo. Since, however, impetigo is generally regarded as a mere variety of eczema; since ecthyma apart from boils and scabies, lichen apart from papular eczema and syphilis, and prurigo apart from pediculi, are exceedingly rare, we may say that practically the use of the India-rubber dressing is applicable to cases of eczema in the wide sense of the term, to less specialised cases of dermatitis, and also to any disease in which pruritus is a chief symptom. On the other hand it is found to be useless, or possibly even hurtful, in cases of psoriasis, particularly when extensive, of erysipelas of all kinds, of cutaneous syphilis, and of lupus ('scrofulides malignes'). The most striking instances of cure have been observed in eczema rubrum and eczema rimosum, the local eczema of various trades, impetigo of the face and scalp in children, and lichen agrius; it is less fitted for the eczema of vari cose legs, though sometimes beneficial in softening indolent varicose ulcers, with the aid of rest, elevation and time. In some severe cases of pemphigus, though not affecting the disease, it notably relieved the distressing irritation.

P. H. PYE-SMITH, M.D.

BUCQUOY ON HERPES ZOSTER.—M. Bucquoy (*La France Médicale*, April, 1875) discusses the relation between the eruptions of herpes zoster, or zona, and its accompanying neuralgia; whether they depend upon morbid changes in the nerve or centre from

* Professor Hebra, having seen the treatment on a visit to St. Louis in 1867, has practised it in Vienna. See *Archiv für Dermatologie und Syphilis* for 1869.

which the part affected is supplied ; and whether the cutaneous affection is the cause of the neuralgia, or the neuralgia the primary affection, and the eruption the secondary result. It has been shown by M. Charcot and others that phlegmonous changes or zona have supervened upon lesions of nerve-trunks or their centres ; and M. Hybord has collected a number of cases in which *post mortem* examination proved that the eruption followed some inflammatory lesion of nerves, spinal ganglia, posterior columns of the cord or the Gasserian ganglion. These facts show that changes in the nervous system have an undoubted influence upon the trophic condition of the part supplied by the affected nerve, and the affection of the eye which accompanies herpes frontalis is consistent with the results known to follow injury or disease of the fifth pair and Gasserian ganglion. The conclusion that every case of zona is necessarily accompanied by injury or inflammation of the nerve which supplies the affected territory is not, however, to be accepted without certain reservations. The connection between the eruption of herpes zoster and nerve-pain may be regarded as satisfactorily established. Yet, having regard to those slight cases of zona, in which the nerve-pain is so trifling and transient an element, M. Bucquoy cannot venture to affirm absolutely either that in simple neuralgia there is actual change in the painful nerve itself, or that the neuralgia which accompanies zona certainly indicates something more than hyperæsthesia, such as active hyperæmia or inflammation of the nerve.

W. B. CHEADLE, M.D.

OPHTHALMOLOGY AND OTOLOGY.

TAYLOR ON SYPHILITIC AFFECTIONS OF THE LACRYMAL APPARATUS.—The *American Journal of Medical Sciences* (April, 1875) has an article by Dr. Taylor, of New York, upon the syphilitic affections of the lacrymal organs. In addition to the different diseases of this nature already recorded, the paper contains an account of two cases in which the caruncles appeared to have become the seat of a gummy infiltration, a disease not previously recorded. Primary syphilitic inflammation of the lacrymal gland has been reported but once only, by Chalons of Luxembourg (*Preuss. Vereins-Zeitung*, 1859) ; and it may be stated, with much positiveness, that the syphilitic affections of the canaliculi, sac, and nasal duct are never primary in their origin, but are due to disease of their surrounding structures. The special disease to which Dr. Taylor wishes to draw attention occurred, in the first instance, in a man, aged twenty-nine, who became syphilitic in 1865, with a chancre which was followed by a rash, buccal mucous patches, and rheumatoid pains. He was under treatment for a considerable time, but very irregularly, and remained in extremely bad health for two or three years. Whilst thus enfeebled he married, and his wife became affected, and their child was born diseased with coryza and an extensive eruption. In 1868, the husband noticed a small tumour at the inner angle of each eye, which rendered closure of the lids difficult and caused a flow of tears over the cheeks. On examination, the caruncles were found to be enlarged to four times their natural size, and pyramidal in shape ; their colour was deep red, without any ulceration, and when the lids were closed they pro-

jected about two lines from between them ; they were firm and elastic to the touch, and did not appear to discharge at all, though the lids were frequently gummed together in consequence of repeated attacks of ophthalmia. The disease was considered by Dr. Taylor to be gummatus infiltration of the caruncles ; the patient, however, put himself under the care of a surgeon, who, without inquiring into his previous history, told him the growths were cancerous, and removed them at once by a free excision of parts, which resulted in considerable deformity. Disappointed at such a result, he returned to Dr. Taylor's care, who treated him for secondary syphilis, with gradual improvement of his general health, until he ultimately lost all evidence of being syphilitic. The second case was that of a labouring man, aged thirty-four, with much the same history of syphilis. The affection appeared at the same time with other well-known secondary symptoms, and corresponded in all respects with that of the caruncles in the previous case. Anti-syphilitic treatment was at once adopted and steadily persisted in, and in the course of ten months the parts had regained their normal size and appearance ; but, unfortunately, the caruncles became completely atrophied, so that a rounded sulcus was formed at the inner angle of each eye, and he was ever after annoyed by epiphora.

The paper concludes by a reference to the cases of a girl, aged eighteen, and of a boy, aged ten, recorded by Von Graefe (*Archiv. vi.*), in which there was partial enlargement of the caruncles by fibrous growth.

MASSELON ON CONJUNCTIVAL GRAFTING.—From the clinical report of Dr. Masselon, in the *Annales d'Oculistique* (March, 1875), it appears that grafting of the skin and of the conjunctiva has been attended with encouraging success in the practice of M. Wecker and of other continental surgeons, in the treatment of ectropion and other deformities of the eyelids ; the grafts of skin have been taken from the arms of other patients, so that there has actually arisen a considerable traffic, each graft having a definite money value. It has been found, too, that portions of integument which have been removed during operations for entropion and the like, may be made available for the purpose. Although in general surgical practice skin-grafting has not realised the degree of success anticipated for it, in hands of ophthalmic surgeons, it has been found most useful ; and the high opinion of its value entertained by Dr. Masselon is fully endorsed by M. Illing, who has great experience of it in Vienna. In M. Wecker's clinique the operation has, however, undergone some modifications, as it has also in the hands of Professor Stellwag von Carion ; so that portions of skin of considerable size are now adapted to raw surfaces, and are kept in place by sutures ; and the method which has been termed mosaic-grafting is not employed till the former plan has been tried and has failed, or in those cases in which the shape of the wound prevents the application of a flap to a raw surface.

The transplantation of the conjunctiva of the rabbit has twice been carried out with success ; and it is impossible any longer to doubt that grafting of this kind will succeed, although the entire original graft appears to melt away. The cases in which Dr. Masselon recommends it are those of partial symblepharon ; it was in such as these that Dr. Wolfe first tried it with success ; in cases also where

it is desired to form a smooth *cul-de-sac* in which the artificial eye may be worn, and in many instances where the conjunctiva has become contracted in consequence of prolonged disease, such as granulations, etc. The operation has been performed with success lately by several surgeons in Paris, by Otto Becker, and especially by Illing in Vienna. The tissue made use of has not always been the conjunctiva of a rabbit, but the mucous membrane of the human lips has been used; and, on one occasion, even the mucous membrane of the vagina was transplanted with success. Otto Becker advises that the graft should be taken from the conjunctiva of an eye which has been lost and has become wasted; but it is a remarkable fact that, when the mucous membrane of the rabbit has been used, the membrane in time appears to become completely absorbed, and to be replaced by a tissue which closely resembles that of the human eye; and, if further experience show this to be the case, it will be quite as advantageous to make use of it, seeing that it can be so readily procured.

HIRSCHBERG ON GONORRHEAL OPHTHALMIA.—In a paper on this subject which appears in the *Berliner Klinische Wochenschrift* (March 15, 1875), Professor Hirschberg has given a concise history of this most terrible form of ophthalmia, from which it appears that until the beginning of this century no description of the disease is to be met with; and the writings of those who first described it differ widely in the accounts of its mode of origin and of the treatment to be employed. Later writers have been more agreed as to its disastrous effects, and in consequence have given more precise directions for its treatment; and it is remarkable that several of our most eminent surgeons agree in asserting that the best results have been obtained in those cases in which mercury has been freely given. In his classical paper on diphtheritic ophthalmia (*Archiv*, vol. i. 1854), Von Gräfe has drawn a distinction between the cases which admit of cure by the energetic use of nitrate of silver, and others which call for much general treatment, and which seem to be greatly benefited by the employment of mercury, and it was while acting as Von Gräfe's assistant that Hirschberg had the opportunity of observing the same good effect of mercury in cases of purulent ophthalmia which were supposed to be due to inoculation by gonorrhœal matter. There is no doubt that this form of ophthalmia is as comparatively rare in other countries as it is in our own; and this is due, Dr. Hirschberg thinks, to the fact that it is difficult to set it up by slight inoculation, except in eyes which are unhealthy, and which present granular conditions of the conjunctiva; and that, as there is a tendency to rub eyes which are affected in this way, a patient with an urethral discharge is consequently more likely to contract ophthalmia of this kind.

The greater part of Hirschberg's paper is devoted to an account of the most minute details of a case of this kind, that of a lad who had for some time suffered from granular lids, and who had the misfortune, while under treatment, to acquire an acute gonorrhœa. The symptoms were typical, and were very severe. The left eye was first attacked, and in spite of every care the right became affected a few days subsequently. The patient was completely isolated, and two nurses gave him their undivided attention. Mercury was used by inunction, and

taken internally in the form of calomel. The eyes were carefully washed, and all discharges were syringed out every quarter of an hour; meanwhile iced applications were employed; when the chemosis was extreme the aperture of the eyelids was enlarged by an incision at the outer canthus in each eye, and in the later stages nitrate of silver in the form of the mitigated solid stick was used occasionally. During the progress of the case the cornea in each eye became ulcerated at the margins, and was treated by atropine; commencing suppuration in the centre of the right cornea was at once met by an incision into the anterior chamber, and the use of a compressive bandage.

In the result, which in spite of the severity of these symptoms may be considered most encouraging, very useful vision was restored to each eye at the expense of very limited opacity of each cornea.

BOWATER J. VERNON.

RECENT PAPERS.

- On Some Congenital Alterations of the Organ of Hearing. By Dr. G. Mori. (*Annali Universali di Medicina e Chirurgia*, April, 1875.)
On the Use of the Ophthalmoscope in the Diagnosis of Cerebral Disease. By Dr. Hutchinson. (*Philadelphia Medical Times*, May 8.)
Contributions to Aural Surgery. By W. B. Dalby, M.B. (*Lancet*, May 29.)

MISCELLANY.

THE Royal College of Physicians have unanimously awarded the Baly medal to M. Claude Bernard.

THE death of M. Schrotter, the permanent Secretary of the Vienna Academy of Sciences, and the discoverer of red phosphorus, is announced.

MR. CHARLES DARWIN has been appointed foreign honorary member of the Imperial Academy of Science, Vienna.

PALMAM QUI MERUIT FERAT.—Professor Drake, the eminent Berlin sculptor, has just finished a colossal statue, nine feet high, of Alexander von Humboldt, ordered by the City of Philadelphia.

NEW IRON MINES.—Some new and very rich mines of iron have been discovered in the neighbourhood of Bodo, in Norway. The ore, which neither contains sulphur nor phosphorus, yields from 54 to 67 per cent. of iron.

THE Emperor of Brazil has sent a collection of Indian skeletons and craniums to Professor Virchow, of Berlin. A very friendly letter from His Majesty accompanies the present, signifying the greatest interest in anthropological researches.

A MISTAKE IN DIAGNOSIS.—Two prominent physicians of Kingston, Ulster Co., New York, have been indicted by the grand jury of that city for mistaking a case of small-pox for chicken-pox, thus causing the spread of the former disease.

COMFORT FOR INVALIDS.—The *Bulletin Français* publishes a description of the plan recommended by Dr. Maurin to keep sick rooms cool. It consists in opening the windows wide and covering the openings with cloths steeped in water. It is well known how largely water, in passing from the liquid to the gaseous state absorbs caloric. This absorption lowers the temperature of the room from five to six degrees in a few minutes, and the humidity diffused in the air causes the heat to be more readily supported. By this system, patients even in the hottest time of the summer, find themselves in a perfectly fresh atmosphere.

CLAY TO CLAY.—Mr. Wilcox has communicated to the Philadelphia Academy of Natural Sciences the description of a singular method of inhumation formerly practised by the Indians of North Carolina. A large number of graves have been found in which the bodies had evidently been laid on their backs and covered with a layer of plastic clay about an inch thick. A heap of wood was then piled up and set on fire, the body was consumed, the clay became baked and retained the impression of the body. After this operation was completed, the mould was covered with earth.

HYDROPHOBIA.—The military commission on hydrophobia, composed of military veterans either in active service or on half-pay, have written, through their president, M. Decroix, to the Institute of the Paris Academy of Medicine, and of the Central Society of Veterinary Surgery, to offer their services in experimentally testing all remedies for hydrophobia submitted to those bodies. A delegate from each or all of these bodies is invited to be present at the experiments. The remedies are administered to undoubtedly mad dogs, and not to dogs which have been bitten and are only suspected to be mad, amongst which, there are four chances to one that they are not actually mad. At the present time the commission is making experiments on a remedy which is held to be so potent a specific against hydrophobia in Tonquin, that Monseigneur Gauthier, bishop of that country, has felt it to be his duty to send some to France.

TOBACCO: ITS USE AND ABUSE.—Dr. Bertherand, in his recently published book on *The Use of Tobacco*, gives the following sensible advice to smokers. Never smoke more than three or four pipes or cigars daily, and, if possible, limit yourself to two. It is not advisable to smoke either when fasting or immediately before or after a meal. In whatever way you smoke, the direct contact of the tobacco with the mucous membrane of the mouth should be avoided, and more especially with the teeth, which are thus excited to grinding against each other. Cigars should be smoked in an amber, ivory, or enamelled porcelain tube. To relight and smoke pieces of cigar is, in connection with the prevalent system of blackened and saturated pipes, the most certain way of incurring disagreeable consequences from nicotine. It is advisable for all smokers to rinse out the mouth after smoking when practicable. For the same reason, all pipes and tubes in which tobacco is consumed should be frequently washed out, either with ether, or water mixed with alcohol or vinegar. Of all forms of tobacco, Dr. Bertherand recommends the cigarette, and is entirely opposed to the use of tobacco in childhood and early youth.

INSECT-EATING PLANTS.—The *Medico-Pharmaceutical Abstract and Review* contains the following accounts of experiments made by Mrs. Mary Treat, New Jersey, on the nature of insect-eating plants. 'When an insect is entrapped a slimy secretion begins to ooze from the inside of the leaf, and in a day or two envelopes the insect's body. After a period of several days the insect disappears, with the exception, perhaps, of some hard parts, which are ejected, and the leaf reopens, if it is healthy, to receive another victim. Such being the *modus operandi* in general terms, Mrs. Treat proceeded to make more careful observations. She found that the leaves and plants differed greatly in their power of assimilation. Some leaves were unable to digest even a single fly, while others disposed of three successively, but never could manage a fourth. When a leaf has done its duty in contributing nutriment to the parent stem, it dies, and is replaced by another or others. The leaves were not restricted to an uniform diet. Mrs. Treat tested them with beetles, spiders (of the daddy-long-legs variety), etc., and even sat for some two hours with her little finger in one of the leaves. This last experiment was unsatisfactory, as for some reason her nerves refused, much to her regret, to let her remain a prisoner long enough to be even partially digested. The leaf had, however, begun to exude its digestive fluid, as if

it would have been quite pleased with a human victim had it been big enough. Beetles and other hard-winged insects were digested by some of the stronger leaves, the operation requiring in some cases as much as two weeks. The strongest plant in the collection caught in all forty insects between May and October, and digested most of them, but this was accomplished by successive sets or relays of leaves. Insects removed after two or three hours of confinement sometimes recovered, but if they were left long enough to become covered with the slimy secretion they always died, although in some cases the secretion was carefully washed off.'

INFORMATION FOR GIN-DRINKERS.—Dr. Richardson, in his Cantor 'Lectures on Alcohol, its action and uses,' gives the following elaborate account of the processes employed to make gin suit the palates of consumers. 'Gin,' he says, 'has to be made cordial, to be sweetened, to be rendered creamy and smooth, to be flavoured, to be made biting to the palate, to be beaded, and what not else. To be made "cordial" it must be charged with oil of juniper, with essence of angelica, with oil of bitter almonds, with oil of coriander, and with oil of carraway. To sweeten it, it must be treated with oil of vitriol, oil of almonds, oil of juniper, spirits of wine and loaf sugar; to "force down" the same, it must be further treated with a solution of alum and carbonate of potassa. To be rendered creamy and smooth, it must be sweetened with sugar, and lightly charged with a small quantity of garlic, Canadian balsam, or Strasburg turpentine. To give it piquancy, it must have digested in it shreds of horse-radish. To be made biting to the palate, it must receive that touch of caustic potash of which I have spoken. As you see the habituated gin-drinker partaking of his favourite drink you observe, often, that he enjoys it the more if it be what he calls "pearly" or "beaded." He holds up the precious liquid in his glass, and as he sees the oily fluid as beads roll down the sides, leaving each a creamy train behind it, he rejoices in his treasure. It is *crème de la crème* of gin. Those wicked pearly drops are, to his flushed eyes, the proofs of the purity and excellence of what he would probably tell you was, without mistake, the genuine article. The genuineness consists in the fact that our enthusiastic friend's gin has been beaded by the addition of the following artistic mixture. An ounce of oil of sweet almonds has been added to an ounce of oil of vitriol. These have been rubbed together in a mortar with two ounces of loaf sugar until a paste has been formed. The paste has next been dissolved in spirit of wine until a thin liquid has been produced; and this, added to one hundred gallons of gin, has given the fine pearly bead that is so much admired.'

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The London Medical Record.

WEDNESDAY, JUNE 16, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

VULPIAN'S EXPERIMENTAL PATHOLOGICAL STUDIES ON THE PHYSIOLOGICAL ACTION OF TOXIC AND MEDICINAL SUBSTANCES.

(Continued from page 303.)

M. Vulpian's third lecture treats of jaborandi, and contains the botanical description of the plant, according to M. Baillon (See LONDON MEDICAL RECORD, vol. ii. p. 317), with references to the researches of MM. Gubler, Rabuteau, Robin, Féréol, Carville, Galippe, Sydney Ringer, Gould, Tweedy and Martindale, published in the LONDON MEDICAL RECORD, vol. ii. pp. 317, 794, 804, vol. iii. pp. 66, 132, 162.

M. Vulpian sums up the properties of jaborandi in the following terms. The sudorific and sialagogue qualities of jaborandi are incomparably more decided than those of all the therapeutic agents hitherto employed in medicine. It may even be affirmed that, before the introduction of this plant into the materia medica, no sialagogue or sudorific acting by the circulation was really known. In French practice tisanes only, which acted by introducing a certain quantity of water into the animal economy, were known. The stock of salivants was rather more extensive; for instance, pyrethri radix. But the effect produced by this root is not the result of a direct action on the secretory glands; pyrethri radix, by reason of its irritant properties, acts directly on the mucous membrane of the mouth, and then by reflex action on the salivary glands. But no sialagogue having the powerful action of jaborandi through the medium of the circulatory system has hitherto been known. With regard to the therapeutic indications of jaborandi, M. Vulpian points out that it produces excellent results in cases of acute exacerbation of chronic bronchitis. He also states that he has seen in young men of twenty a case of undoubted pleurisy disappear in two days. These facts demonstrate that jaborandi is henceforth destined to take a high place in therapeutics. It is certainly likely to play an important part in the treatment of uræmia and dropsies generally. It may also prove to be useful in rheumatism, though on this point there still remain doubts which will assuredly be cleared up by ulterior researches. In the actual state of medical knowledge, it cannot be admitted that the increased amount of perspiration obtained in rheumatic patients by therapeutic means has an incontestable curative action; on the contrary, the suppression of perspiration has been seen to produce good effects in this disease. M. Vulpian has, he says, indeed seen several cases in which the arrest of perspiration by means of atropine has considerably relieved the patient without producing the least aggravation of the symptoms of the disorder, and without prolonging its duration.

Jaborandi being destined to hold a considerable rank in therapeutics, it is useful to know in what dose it may become toxic. Many experiments have been made with this object. M. Robin has produced death in a guinea-pig after having injected 1·7 gramme (26 grains) of extract of jaborandi in dilution in 10 grammes of water. The injection of this liquid was made at several different times—about ten in the space of half an hour. This quantity will appear very considerable, if it be remembered that the extract injected contained the active principles of twenty grammes of jaborandi. M. E. Hardy experimented with the non-crystallised chlorhydrate of pilocarpine. Half a centimètre of a watery solution, not titrated, but very much diluted with this salt, introduced under the skin of a guinea-pig in M. Vulpian's laboratory, killed the animal at the end of an hour and a half. The experiments M. Vulpian performed on frogs gave little or no result. Finally, in numerous experiments made on jaborandi by M. Vulpian, he often injected an infusion of ten and even twelve grammes of jaborandi leaves without producing death. MM. Rochefontaine and Galippe have also frequently injected the same doses of infusion of the bark, stems, or leaves of jaborandi in dogs, and death only occurred once. In the experiment which ended by the death of the animal, ninety grammes of water, having had ten grammes of leaves coarsely powdered into it, were used. The injections were made on three occasions at intervals of two or three minutes. Some minutes after the first injection the animal began to salivate abundantly; its eyes were full of lacrymal fluid. A little later on vomitings ensued, succeeded by diarrhoea. San- guinolent mucus came out of the nostrils. The pulse was small, unequal (100 per minute). The pupils, at first enlarged, reverted to their normal condition. The animal trembled, and appeared very weak; it died during the night. The mucous membrane, the stomach, and intestines were found to be intensely congested, as were also the encephalon and its membranes. There were ecchymosed points in the lungs, especially above the pleura. To sum up, the degree of toxicity of jaborandi still remains to be determined. As to the toxic power of the active principle of jaborandi, it can only be studied with something approaching precision when we shall have this principle perfectly isolated at our disposal, either in the alkaloid form or as a salt, and titrated solutions can be made from it. The physiological action of jaborandi is of various kinds.

Jaborandi acts very powerfully on the secretions, modifies the temperature and the circulation, and when applied to the eye brings on a very decided myosis. Taking first in order the hyperæmia brought on by jaborandi, the secretory action of the majority of the glands becomes increased. The salivary glands are often first attacked; then the lachrymal glands, then the glands of the skin and mucous membranes, then the liver, the pancreas, the mammary glands, and the kidneys. It is useful for the physiologist to be cognisant of these effects of jaborandi, for this substance is a very important agent in experiment and research. In fact, jaborandi furnishes the means of obtaining at pleasure the products of the secretions of various glands. If, for instance, it be desired to collect the pure sub-maxillary saliva of the dog, free from all mixture with the rest of the buccal saliva, it is only necessary to introduce a cannula into Wharton's duct, whence the liquid will flow under the influence of

jaborandi. But this substance is particularly useful to obtain the parotid saliva, which, in the case of dogs, has only been able to be collected with great difficulty and in small quantities by all the plans hitherto employed. The means consists in introducing a cannula into Stenson's duct; by the help of jaborandi a truly considerable amount of parotid saliva is obtained. M. Vulpian has thus procured from a moderate-sized dog eight cubic centimètres of this saliva. Sublingual saliva may also be obtained by the same plan. Saliva secreted by the molar gland in the dog could doubtless even be obtained. The salivary liquids collected in this way have the particular characteristics which distinguish them when they are obtained under other conditions.

Jaborandi also gives us the power of collecting pancreatic juice at the various periods of digestion or in a fasting condition. When a dog is curarised and submitted to artificial respiration, the secretion of the pancreas is generally very inactive, and if a cannula be placed in Wirsung's duct, only very few drops of pancreatic fluid flow from it. But if the animal be submitted to the action of jaborandi, a comparatively large quantity of pancreatic juice may be collected into a vessel. This liquid is, without doubt, normal pancreatic juice; it is of a watery fluidity, colourless, clearly alkaline, and gives a very copious white precipitate when it is treated with nitric acid. In one of M. Vulpian's experiments, it became solidified in the form of a massive white block under the influence of that acid. It likewise exercises a slight saccharifying action on starch.

Henceforward, as has already been remarked, by this method pancreatic juice can be obtained during the various stages of digestion, and the data laid down by M. Lucien Corvisart with regard to the more or less powerful influence exercised by this liquid over albuminoid substances, according to the moment in which they are collected, can be easily verified. The same will hold good of the bile, which may be collected in abundance, and in an absolutely pure state, by means of a cannula introduced into the common bile-duct, in a curarised or non-curarised animal, into the crural vein of which a watery infusion of from two to three grammes of jaborandi is infused. Besides this advantage of being able to procure at will the secretion of various glands, there is still another, that of being able to study the elimination of toxic or medicinal substances through these glands. The interest attaching to this experimental process and to its probable results will be immediately perceived.

The next point under review is the study of the physiological mechanism of the action of jaborandi.

As the starting-point of this study, M. Vulpian takes the effects produced by jaborandi on the secretions, and chooses those secretions which are principally increased; that is to say, salivation and the sudorific secretion.

With regard to salivary hyperæmia, he studies in an exhaustive way the mechanism of the effects of jaborandi on the submaxillary gland, because the relations of the nervous system with this gland have been much investigated of late years, and that they are better known to us than those belonging to the other salivary glands. It is, besides, almost unnecessary to add that what is said of submaxillary sialorrhœa may be applied to the mechanism of the effects of jaborandi on the other salivary glands. When it is sought to discover by what means jaborandi may increase the secretion of the

submaxillary gland, we find ourselves face to face with two hypotheses. 1. Either the jaborandi acts directly on the cells belonging to the gland, by bringing on, likewise, vaso-dilatator reflex adjuvant phenomena; 2. or it acts on the secretory action of the gland in an indirect way by the medium of the nervous system. We will see which of these two hypotheses best corresponds with the facts.

The first hypothesis owes its origin to M. Gubler. According to it, the jaborandi eliminated by the salivary glands would excite, at the time of its passage, the cells belonging to those glands. This excitation would produce, as a connected phenomenon, an irritation of the peripheric extremities of the centripetal nerves which are distributed in the glandular tissue.

This last irritation, acting by a reflex path, would bring on dilatation of the glandular vessels, and consequently a more considerable afflux of blood. And the afflux of blood, furnishing more abundant materials to the secretory action of the tongue, would in its turn favour an excessive secretion of saliva.

M. Vulpian considers this theory to be scientifically conceived, and that considered by itself it is very satisfactory. Only, in order that it should be accepted, it must first be demonstrated that jaborandi is eliminated by the salivary glands. Now M. E. Hardy has made the analysis of the submaxillary saliva which M. Vulpian collected in one of his experiments on jaborandi, and has not found any trace of alkaloid in it. M. E. Hardy made an analysis for bile, and in this case the result was, if not negative, at least doubtful. Here we already meet with a presumption against M. Gubler's theory, and it seems probable that jaborandi does not produce salivation by acting directly on the cellular elements of the *cils-de-sac* of the salivary glands. However, before affirming anything of this kind, the experiments must be varied and repeated, so as not to retain any doubt as to the non-elimination of the principle of jaborandi by the salivary glands.

M. Heidenhain's experiments also furnish another argument against the theory in question. In order that the value of this argument may be thoroughly appreciated, it will be as well to give a rapid sketch of the plan of innervation of the submaxillary gland. This gland receives nerve-filaments coming from two different sources. 1. Certain of these filaments emanate from the medulla oblongata. These are the filaments coming from the chorda tympani, a branch of the facial nerve. The chorda tympani unites itself to a branch of the trigeminus, the lingual nerve, so as to form with it a single trunk, whence a nerve starts which in the dog follows a recurrent path, and returns to the submaxillary gland. This anatomical disposition might give reason to imagine that the glandular filament comes from the trigeminus and originates in the pons Varolii, but physiology and histology have clearly demonstrated that it is formed by the filaments of the chorda tympani, a branch of the facial nerve. The other nerve-filaments of the submaxillary gland come from the great sympathetic, and are furnished by the superior cervical ganglion; the majority of them are conducted to this ganglion by the cervical cord of this nerve-system.

It will now be easy to understand the processes in use amongst physiologists to excite the submaxillary gland. It is not very easy to get at the facial nerve in its intracranial course, above the point of origin of the chorda tympani. The chorda

tympaui may be easily got at by the external ear, and divided in the drum by perforating the tympanic membrane; but it is scarcely possible to excite it at that depth by means of an electric current. It is, on the contrary, easy to discover the lingual, at a point of its course situated above the origin of the recurrent filament, which distributes itself to the submaxillary gland; this filament can thus be either paralysed or excited by acting on the lingual at this point, and it is evident that the same effects should be obtained as a direct action on the gland, as if the section or the excitation of the chorda tympani itself were made before its union with the lingual nerve.

Excitation of the sympathetic nerve does not offer similar difficulties. The experiments are made on dogs; in these animals the cervical cord of the sympathetic is united to the pneumogastric, and the branch formed by them is called the vago-sympathetic nerve. Consequently, if, after having bisected the vago-sympathetic in the middle of the neck, its upper end, that is to say, the one nearest to the encephalic centre, be excited, the fibres of the sympathetic which go to the submaxillary gland after having traversed the superior cervical ganglion are inevitably excited. After having recapitulated these anatomical facts, M. Vulpian continues his subject by stating that Ludwig had seen that the excitation of the lingual nerve, practised above the filaments furnished by it to the submaxillary gland, produces a remarkable increase in the secretion of saliva. M. Claude Bernard has confirmed this observation, and has shown that the effect obtained was due to the excitation, not of the fibres of the lingual nerves, but of those of the chorda tympani.

Professor Schiff had also placed beyond doubt the influence of the chorda tympani over the submaxillary secretion. In a memoir published in 1851 on motor-paralysis of the tongue, he says, 'As I intend to show in detail in my work on the nerves of taste, by the excitation of the chorda tympani the acceleration of the salivary excretion is induced; by the destruction of this nerve, this acceleration is prevented.'

On the other hand, Czermak had shown that faradisation of the nervous filaments furnished to the submaxillary gland by the great sympathetic stops the secretion provoked by the excitation of the chorda tympani. However, this stoppage does not take place immediately on the electrification. MM. Eckhard and Adrian have, on the contrary, shown that during the first few moments there is an acceleration of the salivary flow. At that time there flow some drops of a thicker, more viscous, more opalescent saliva, than under the influence of the excitation of the lingual nerve united to the chorda tympani; and it is only after this short period of secretory augmentation that the submaxillary secretion stops.

(To be continued.)

HUGHLINGS JACKSON ON CASES OF NERVOUS DISEASE.

A report of some interesting cases, with remarks by Dr. Hughlings Jackson, appears in the *British Medical Journal* of June 12.

A man had much twisting about of his right arm of some months' duration. The movements were not choreal; they were not punctuated, but glided into one another—the simple expression 'twisting about' describes them best. The right leg was but slightly affected. Dr. Hughlings Jack-

son uses the term 'hemikinesis' for over-movements of one side of the body, as, for example, hemichorea, hemispasm, etc. He believes there is a 'discharging lesion' of the cerebral hemisphere in these cases; but why in one the nervous discharge is in an almost continuous stream, in others in a punctuated sequence, and in others abrupt and occasional, he does not pretend to know. Very many kinds of treatment were tried for this poor fellow, but the only thing which was followed by benefit was the subcutaneous injection of woorari. There could be no doubt of the benefit which followed this injection; for a time, too, the man's general health was better. Recently, the injection has been discontinued because he has severe headache after it. It is noteworthy that, since its use, the sensation of the left arm has greatly diminished; it was slightly but decidedly less than that of the left arm before the injections were used, but now it is very much less.

Several cases of optic neuritis with supposed intracranial tumour were shown. Dr. Hughlings Jackson insisted that extreme neuritis very often existed with good sight. The ophthalmoscope ought to be used whenever a patient had severe headache. He said that he believed that, were the ophthalmoscope used by routine, there would be less blindness. He thinks it probable that there is always a pre-matrotic stage of neuritis, and that, were large doses of the iodide of potassium given at that stage, the neuritis would often retrocede. As he invariably gives iodide of potassium in optic neuritis, he cannot make a confident statement. He showed a patient whose neuritis had disappeared under iodide of potassium. He thought that optic neuritis was, although not certain, the best evidence of gross or coarse disease within the cranium. It was, however, of no value in localisation.

In one case, from the fact of convulsion of the right side, Dr. Hughlings Jackson said there would be disease of the left cerebral hemisphere (a discharging lesion); next, from the fact that there was optic neuritis, the discharging lesion would be the result of irritation by coarse disease; and, in the case spoken of, this coarse disease was probably an abscess, as there was disease of the bone in the orbit. He insists on this diagnosis of stages. This diagnosis was in essentials recapitulated with regard to a patient of Dr. Hughlings Jackson's, whose body was to be examined *post mortem* by Dr. Sutton that afternoon. The lad had had convulsions (some with and some without loss of consciousness) beginning in the left hand; he had double optic neuritis and intense headache (Dr. Hughlings Jackson believed that the lad died of pain). So far there was clear warrant for the diagnosis of 'a discharging lesion' of the surface of the right cerebral hemisphere, and that that discharging lesion was the result of coarse disease. As to the particular nature of the coarse disease, there was a doubt. Dr. Hughlings Jackson thought that, as there was organic ear-disease, there would be a scrofulous tumour. He had several times seen scrofulous tumour at necropsies of patients who had died with organic ear-disease, 'instead,' so to speak, of cerebral abscess. In this lad there was found *post mortem* local roughening of the bone, subjacent adherence of membrane, and little tumours going from it into the convulsions. The area involved was over about half a square inch behind the lower third of the fissure of Rolando on the right side. There was considerable local softening, and also great cedema beyond the

parts actually softened. Dr. Sutton agreed with Dr. Hughlings Jackson in thinking it most probable that the local coarse disease was syphilitic. If so, it is the only necropsy on a case of congenital syphilitic disease of the nervous system that Dr. Hughlings Jackson has seen, which has revealed any coarse alteration. Such cases are valuable as bearing on Hitzig's and Ferrier's experiments, but unfortunately the disease in this case was too extensive for any precise localisation.

Several other patients also were subjects of that kind of convulsions which the lad had whose case has been just mentioned. These are such cases as are illustrated by the experiments of Hitzig and Ferrier. Dr. Hughlings Jackson's plan is to ask the patient to describe his fits himself; this he can do in great part, as in the convulsions spoken of (commonly called epileptiform convulsions), a good deal occurs before the patient loses consciousness. One patient gave a very vivid account of what Dr. Hughlings Jackson calls the 'march of the spasm.' This patient's fit began in his left index finger and thumb; it then passed *up* the arm, and affected the face, and next passed *down* the leg. It is the rule that fits which begin in the hand should begin in the index finger and thumb; when they begin in the foot, they usually begin in the great toe.

Speaking of these cases, and with reference to their difference from such cases as are commonly called epilepsy *par excellence*, Dr. Hughlings Jackson said that he thought the abrupt division into cases with and cases without loss of consciousness was not even justifiable on grounds of convenience. The absolute separation was, he thought, a 'survival' from a metaphysical stage of thought, when consciousness was thought to be an entity. The real distinction even empirically broke down in practice. The distinction was, he insisted, into cases where consciousness was lost first of all, very early or late in the paroxysm. If the 'discharging lesions' were in the very highest nervous processes there would be loss of consciousness first of all; if the 'discharging lesions' were seated in a subordinate series of nervous processes, consciousness was lost late or not at all. Wherever the discharging lesions were seated, consciousness would be lost if the discharge were strong enough.

With regard to several cases of graver cerebral disease, Dr. Hughlings Jackson insisted strongly on the fact that active mental symptoms (delirium) were not of much value in the diagnosis of primary cerebral disease, such as tumour or meningitis. Such symptoms, he said, occurred most often in non-nervous cases, pneumonia, erysipelas, etc. They may be called Very General Mental symptoms, for they occur under the most varied circumstances; prolonged fasting will produce them. Cerebral disease itself is but one of many conditions under which they arise. Then, on the other hand, the valuable symptoms of primary intracranial disease were, so to speak, non-nervous symptoms; vomiting, slow and irregular pulse, constipation, retracted belly, and, in acute cases, emaciation. He said it was a grave fault to take a nervous view of nervous diseases.

Another patient had paralysis of the third nerve. Dr. Hughlings Jackson showed by this case that double vision was not the cause of the giddiness in patients who have ocular palsies. The good eye being covered, and the lid raised on the side paralysed, the patient was told to walk. He

tried, but reeled on to a bed directly. The irregularity of gait results from the erroneous estimation of the position of objects by the faultily moving eyeball, or, rather, by the nervous centre for the movements of it.

A patient who had had attacks of Menière's disease, for a long time after a paroxysm, when his eyes were closed, reeled in his gait. Dr. Hughlings Jackson is a firm believer in the association of ear-disease and vertigo, reeling, and vomiting. Sometimes the reeling lasts for months after an attack. He has three cases of Menière's disease under his care now; in one of them, as there is a renal disease—a common condition for retinal and cerebral hæmorrhage—he thinks there is hæmorrhage into the labyrinth. There are, however, no hæmorrhages in the retina. In cases where the ear-disease is irremediable, Dr. Hughlings Jackson treats the effects; he gives digitalis, bromides, etc.

Another patient had simple atrophy of the optic nerves, along with locomotor ataxy. Simple atrophy of the optic nerves is an aid to diagnosis in doubtful cases of ataxy. It is a 'masculine' affection; rarely seen in women, in whom also locomotor ataxy is rare. Atrophy after neuritis is common enough in women. The case spoken of was in other respects rare; the ataxy was chiefly in the arms. Atrophy of the optic nerves is rarely seen in locomotor ataxy.

There was a patient who, besides being absolutely deaf, had bilateral muscular atrophy. Progressive muscular atrophy, as a rule, not only begins unilaterally, but it affects, first and most, those muscles whose chief use is unilateral; it begins in the hand. In this class of cases, Dr. Hughlings Jackson showed, certain muscles of locomotion are bilaterally affected, which are often used bilaterally or alternately; there was complete palsy of both serrati magni, so that his scapulae stood out like wings; of the erectores spinæ, so that the man's shoulders were held further back than the buttocks; and of other muscles. Dr. Hughlings Jackson has seen these palsies with palsies of cranial nerves of vocal cords, deafness absolute, and with palsy of both facial nerves without deafness. He has had no necropsy. He has never seen a case in an active stage. Several he has had under care for many months, the symptoms remaining unchanged.

LUBIMOFF ON THE DEVELOPMENT OF NEWLY FORMED VESSELS IN PROGRESSIVE GENERAL PARALYSIS.

Dr. Alexis Lubimoff, of Moscow (*Archives de Physiologie Normale et Pathologique*, no 6, 1874), says that, among the different pathological phenomena which are found in the brain in progressive general paralysis, it has been observed that in some cases the number of blood-vessels appeared to be considerably increased. This phenomenon has been considered as the result of a real vascular proliferation; and Professor Ludwig Meyer distinctly speaks of this proliferation as one of the phenomena of pathological anatomy that is observed in progressive general paralysis; but he withdraws this opinion in a subsequent article.

In the special investigations on the anatomico-pathological alterations in progressive general paralysis which Dr. Lubimoff made in the laboratory of

Professor Meynert at Vienna, and in that of Professor Virchow at Berlin, and of which the results have been published in two papers, some cases were observed in which the number of blood-vessels was sensibly augmented. However, not having sufficient reason for believing in the existence of newly formed vessels, he did not venture to make a positive assertion as to a true vascular proliferation, so that he had confined himself to pointing out the fact without seeking to interpret it.

However, if we reflect that, in consequence of cerebral hyperæmia in progressive general paralysis, the vessels of the brain are considerably injected by the blood-corpuscles, and for that reason become more distinctly visible in the field of the microscope, it seems that this apparent proliferation of the blood-vessels might be thus explained. On examining the brain of an individual who had died from progressive general paralysis, and who presented well-marked pathological changes in the brain, Dr. Lubimoff distinctly observed some histological peculiarities which had a certain relation to the question of the development of newly formed vessels in this disease, and which for that reason deserve to be noticed. The history of the disease and the results of the necropsy may be passed over, since we have only to consider the histology of the pathological changes.

In the frontal lobes, which presented the most manifest alterations, there were found among the lesions small areas of softening, invisible to the naked eye; but, on macerating the piece in a weak solution of chromic acid, these areas became evident, because the softened portions were distinguishable, on section, by their loss of consistence and their friability. Under the microscope, the sections made in the neighbourhood of the softened parts showed a considerable number of blood-vessels, as well as a great number of cells of interstitial tissue. These cells had a stellate form, and their processes, which gave off numerous ramifications, themselves presented some peculiarities. It had already been observed by the author that these cells are in direct connection with the blood-vessels, and that the process which traverses the sheath of the vessels and the perivascular space, in order to be inserted into the walls of the vessels, is much more developed than all the others. In the present case, on examining transverse sections of two convolutions in the neighbourhood of the softening, it was seen that, in advancing from the healthy parts to the softened spot, these cells became more and more numerous, and those processes which ended in the blood-vessels presented an increase of development which exceeded anything that had been hitherto seen. Most of the blood-vessels had thin walls, and presented numerous ramifications. On the constant existence of this proliferation of the cells of the interstitial tissue, which the author has found in every case of progressive general paralysis, added to other pathological phenomena, he has based his theory of the true nature of that pathological process which he regards as a chronic interstitial inflammation.

On remembering, on the one hand, the proliferation of the cells of the interstitial tissue in the early stage of this disease (when the nervous elements have not yet undergone any alteration), and the intimate relation of the cells of the interstitial tissue to the nerve-cells, the processes of the cells of the interstitial tissue imprisoning, as it were, on all sides the nervous elements as in the meshes of a network; and on considering, on the other hand, the imme-

diate connection of these same processes with the vascular system, with which they seem to be continuous in the substance of the cerebral parenchyma, the author is convinced that the cells of the interstitial tissue have some influence on the origin of certain pathological phenomena that are observed in relation with the intellectual functions in progressive general paralysis.

In short, as a consequence of the hyperæmia which occurs in the course of this disease, the endosmotic conditions are changed, the cells swell up, augment in volume, and then disturb the functions and nutrition of the nerve-cells. If the hyperæmia happen to disappear, the cells of the interstitial tissue diminish in volume, and the nutritive functions, those of the nerve-cells especially, recover themselves in consequence. And this is precisely what explains the alternate disturbance and recovery of the intellectual functions as observed in this disease. It is known that patients may at certain times recover the perfect use of their faculties to lose it again, and then again recover it, until, by their frequent repetition, these hyperæmiæ, the duration of which often goes on increasing, at length produce an essential alteration in the nerve-cells, and a continued and decisive disturbance of the intellectual functions.

J. LOCKHART CLARKE, M.D.

MEDICINE.

COLRAT ON GLYCOSURIA.—In the *Cincinnati Clinic* of May 15th is given a translation from the *Lyon Médical* of Dr. Colrat's remarks on glycosuria. He writes:—"When the blood from different parts of the circulatory system is examined, with the exception of that of the portal vein, it is found to contain a very nearly constant proportion of glucose, no matter what the nature of the alimentation at the time may be. In the portal vein on the contrary, the blood contains a quantity of sugar which varies according to the alimentation, and according as the animal is experimented upon while fasting or during digestion. The liver therefore seems to act as a special organ for retaining sugar.

"The experiments of Claude Bernard prove this remarkable function. "If we inject 10 grammes of ordinary glucose dissolved in 30 grammes of warm water, we see that the proportion of sugar in the blood becomes too strong, and this substance in excess passes off in the urine. But if, instead of injecting the solution into the jugular vein, we make the injection with the necessary precautions into the rectal branch of the portal vein, we ascertain that the sugar does not pass into the urine, even although the dose be increased. The liver therefore acts as a sort of barrier which retains the sugar and prevents it from appearing in a large proportion in the current of the circulation." (Claude Bernard, *Revue scientifique*, May 10, 1873.)

"The same demonstration may be arrived at by ligation of the portal vein. When this operation is made after Ore's method, the collateral circulation is established by the anastomoses which unite the hæmorrhoidal branches of the portal vein with the veins of the abdominal parietes, also anastomoses with the œsophageal and diaphragmatic veins, and in animals especially with the renal veins, in such a manner that the blood coming from the intestine no

longer passes through the liver, but is emptied by these anastomoses directly into the general circulation. If in a dog thus operated upon ten or twelve grammes of sugar are introduced into the alimentary canal, after the lapse of half an hour or three-quarters of an hour the presence of glucose in the urine may be demonstrated, whereas in the same conditions, but not having his portal vein obliterated, thirty, fifty, sixty or eighty grammes of sugar are necessary to produce saccharine urine. (See Cl. Bernard, *Revue scientifique*, 1873, no. 49).

'The experiment of ligature of the portal vein is realised, so to speak, in the human subject under certain circumstances, in pylephlebitis and in cirrhosis of the liver. In the latter case the obstruction takes place in the ramifications of the portal vein in the liver; it is certainly not complete, but it is well known to what an extent the anastomoses of the portal vein are developed, which anastomoses, receiving the blood coming from the intestine, and consequently charged with the products of digestion, pour it into the general circulation.

'Under these conditions, identical with those in which an animal is placed whose portal vein has been ligated, sugar ought to be found in the urine after the ingestion of saccharine substances.

'It has seemed to us interesting to make this research, and we have, in a certain sort, experimented on two patients afflicted with cirrhosis of the liver. The result has been completely confirmative. We proceeded as follows in the analysis of the urine. In order to procure normal urine, that is, urine passed while the patient was fasting, we took care to have the patient empty his bladder in the evening at nine o'clock, five hours after the last meal. This urine was thrown away. The patient remained absolutely without food during the whole of the night, and was careful to urinate during this time until morning into a receptacle appropriated to the purpose. The examination of this urine was always negative. In regard to the urine of digestion, it was procured during the three hours following a meal or the ingestion of saccharine substances. The urine was always treated in the same manner, that is, filtered through well washed charcoal until quite colourless, and then subjected to the various methods of examination in use (those of Barreswill, of Moore, of Böttger, Luton, etc.). At the same time we took the precaution to examine comparatively the urine of a healthy subject, placed under the same conditions as the patients, that is, subjected to the same alimentation, except that for the healthy subject the quantity of sugar was doubled or tripled. Thus, while patients received 100 or 200 grammes of grapes, he took 400 or 500. When the experiments were made with syrup, the quantity of syrup was always double for the subject who served for comparison; the urine of this latter was moreover treated in the same manner as that of the patients, and we were never able to discover the presence of sugar in it.'

After giving several cases, Dr. Colrat writes :

'It is clear that in these cases we did not have to deal with true diabetes. The sugar, indeed, appeared in the urine only when it was brought from the intestines in too great quantity (about three parts in the thousand) into the general circulation. These conditions are only found realised when the patient has absorbed a certain quantity of amylaceous or saccharine substances, which, absorbed by the venous system, are poured directly by enlarged anastomoses into the general circulation, without

passing through the liver. There is to be found, however, in the *Recueil d'Andral* a case of diabetes in which the autopsy revealed an obstruction of the portal vein by pylephlebitis.

'We think that in this case the inflammation of the portal vein ought to be attributed to the diabetes. At all events, it is evident that it was not the same with our patients, who presented no sign of diabetes (no polyuria, no polydipsia, etc.), and the autopsy demonstrated cirrhosis of the liver. It is not only as a confirmation of a physiological theory already proved experimentally that these observations seem of interest to us.

'Glycosuria, demonstrated to exist under the conditions which we have indicated, becomes a sign of partial or complete obstruction of the portal vein, either by pylephlebitis or by compression, or by cirrhosis.

'We had an opportunity, in an obscure case, to appreciate the value of this clinical sign. It was the case of a young man, twenty-eight years of age, admitted into our service for ascites. This patient had indulged in alcoholic excesses; the affection developed progressively, without abdominal pains, and had commenced with digestive troubles; everything seemed to favour the diagnosis of cirrhosis. Nevertheless we rejected the idea, because the patient had no sugar in his urine after the ingestion of amylaceous and saccharine substances even in large quantities.

'The necropsy revealed to us a tubercular peritonitis which we had admitted in spite of the absolute integrity of the lungs.

'To repeat, we see that in man in disease, as in animals experimented upon, the obstruction of the portal vein determines what Claude Bernard calls an alimentary diabetes, and we think that in certain doubtful cases, this symptom may furnish important indications for the diagnosis.'

SPENDER ON A FORM OF UROHEMATURIA.—In the *Medical Press and Circular* (June 2) Dr. Kent Spender writes as follows. 'When blood exists in the urine in the usual, and (so to speak) the normal way, no symptom is more self-evident; any student can see it and demonstrate it. Now and then, it is true, there are fallacies which require sagacity and experience to detect: thus, a small quantity of blood derived from the kidneys gives the well-known sooty deposit in the urine, and a dark jaundiced tint may not always be quite easy to discriminate. As a rule, however, blood appears in the urine as blood, bright and red, and unmistakable in its physical and chemical characters; while albumen can be found in direct proportion to the quantity of blood present. But it is well known to many practitioners, though not so generally known as it should be, that a perfectly pale, almost colourless urine, of ordinary specific gravity, may be the unsuspected vehicle of blood, which is oozing out of the system in a clandestine way, and robbing the body to a not less certain and damaging extent than if it displayed itself in all its martial colours. Nay, still more, this treacherous, colourless urine, exhibiting no danger-signals to either doctor or patient, may contain every element of destruction, and may represent wear and waste of a most fatal kind.

'Here is a typical case. A young man or young woman, suffering from what we, as a cloak for ignorance, call hysteria or spinal irritation (or, perhaps still more darkly, "functional derangement"),

has a pale lip, a blanched cheek, and a palpitating heart. Sometimes there is so much irritation about the bladder as to give rise to the suspicion of stone, and the urine passed is so pale that possibly we are astonished to find its sp. gr. very little (if any) below the normal standard. This last point ought to be quite sufficient to excite further inquiry. Now, if to this colourless and seemingly innocent urine strong hydrochloric acid be added, it rapidly assumes a port-wine tint, showing that we have an excess of combined urohæmatin, which is liberated by the acid. The case stands simply thus—that an immense destruction of blood-corpuscles may take place in the body, and their *débris* be so eliminated as to be invisible until the application of an acid sets it free. In some of these cases the excess of urohæmatin in the urine is so great that after it has been set free by an acid, and taken up with ether, the ether after standing solidifies into a red-currant, jelly-like mass, and may actually be cut with a knife.

‘Sometimes a great part of the urohæmatin exists in the urine in a free state, and then the urine is red in colour before any acid is added, although the addition of the acid makes it still darker. These cases are essentially different from hæmaturia. In hæmaturia the urine is muddy, not transparent, and contains blood-corpuscles. In the cases I am describing, whatever may be the precise tint of the urine, it is always clear, and contains no blood-corpuscles. Whenever we have before us a disease like chlorosis, questions should be asked about the urine; and nine times out of ten we shall be told that it is all right, perfectly clear, and quite free. We may even satisfy ourselves that it has no trace of either sugar or albumen; and yet what a danger lurks behind! Both doctor and patient may be lulled into the belief that there is nothing materially wrong, when a grave lesion is making rapid strides towards a fatal end.

‘It is to the clinical sagacity of Dr. George Harley that we owe a knowledge of this lesion, and a means of clinically recognising it.

‘During the last few years I have, when possible, examined the urine in all cases of extreme chlorosis, and seldom without finding the reaction described by Dr. George Harley in greater or less intensity. A point worth noticing is, that the urohæmatin is not always in the same state of oxidation, and, like indigo, its colour depends on the amount of oxygen it contains, so that it may be pale yellow at one time, red at another, and brown at a third. In consequence of this, different acids act upon the urine differently. In one case we may find that the addition of nitric, sulphuric, or hydrochloric acid gives rise to exactly the same results; whereas in another case hydrochloric acid may turn the urine red, while nitric acid only causes it to become yellow; and in a third case sulphuric acid may develop the colour of the urohæmatin better than either of the others.’

J. MILNER FOTHERGILL, M.D.

LINCOLN ON SPINAL PARALYSIS IN AN ADULT RESEMBLING THE SO-CALLED INFANTILE PARALYSIS.—Dr. D. F. Lincoln reports the following case in the *Boston Medical and Surgical Journal* for March 25. A tall, stout man, forty-nine years of age, and of previous good health, noticed one morning, without any previous symptoms, a feeling in his legs as if they had fallen asleep. The feeling came on again and again through the day, and he

began to be a little weak in the legs. In the afternoon, when trying to step upon the platform of a street-car, he failed, and had to be helped in. On arriving home, he was able (with assistance) to walk up-stairs to his bedroom, and went to bed, where he remained.

When seen by Dr. Lincoln, two days later, he felt well. There was no giddiness; the muscles of the face and eyeballs were under perfect control; the pupils were normal in size and contracted well; speech was natural, vision and hearing without defect. The bladder and rectum performed their functions normally. The senses of touch, pain, and temperature were normal in the hands, and nearly so in the feet. Reflex contractions could scarcely be obtained from the soles. There were no abnormal sensations. Pulse 80, temperature 98°. There was no albumen in the urine.

The muscles of the neck and limbs, except below the knees, were generally in a condition of semi-paralysis. He lay on his back, almost helpless; could not raise his head from the pillow without some help, and could not raise his knees from the bed by flexing the thighs. The grasp of his hand was very feeble indeed. There was no paralysis of any muscle. Below the knees he seemed to have more strength. The weakness was much more marked on the left than on the right.

The treatment consisted at first in *nux vomica* and cinchona, and subsequently tincture of iron with strychnia, and Horsford's acid phosphates of lime and magnesia. On the fifth day of the attack, treatment by the induced electric current was begun, when it was found that some, at least, of the muscles had lost part of their susceptibility to this stimulus. The loss went on increasing until the twenty-first day, when the galvanic current was substituted, a descending current being applied to the spine, and interrupted currents to the muscles, three times a week; the faradic current was also continued for a few weeks.

The hot-air bath to profuse perspiration was used just before the application of the currents, together with regulated gymnastic exercises. The paralysis of the muscles was gradually relieved under this treatment to a very considerable degree. The patient's improvement was very gradual, and it was six months before he was able to ride out. He finally was enabled to attend to his business pretty much as before the attack.

LUBELSKI ON BULIMIA.—At the last meeting of the Academy of Medicine, on June 1, Dr. Lubelski read an account of a curious case of bulimia observed in a young woman aged twenty-six, who had generally enjoyed good health. She had been married for two months, when she suddenly had a nervous attack, which was first attributed to pregnancy, the menses not having made their appearance for some time. At the same time a devouring hunger and an insatiable appetite made their appearance. The patient ate from fourteen to sixteen pounds of meat per diem. Nothing abnormal was found in the urine; no albumen nor sugar. She grew very stout, so that at the end of some months she was unable to walk, and weighed about 250 lbs. All known therapeutic means were tried, of which the most lowering had absolutely no effect. The only peculiarity observed was a quite abnormal tolerance for toxic substances.

M. Lubelski sought for a cause to which he could

refer this pathological condition; it was not the bulimia or excessive obesity observed in certain kinds of insanity; the patient was in full possession of her faculties, and had neither tænia nor any other intestinal worm. The convulsive nervous symptoms exhibited by her, especially when she had not taken food, gave rise to suspicions of neurosis; but of what nature? M. Lubelski has not been able to solve this question, nor to fix on a course of treatment, since up to the present time every plan which has been tried has been entirely useless.

CLARKE ON TWO CASES OF TRANSFUSION.—Dr. D. Clarke reports the following cases in the *Canada Lancet* for April 1.

The first was that of a woman thirty-three years of age, the subject of advanced phthisis. The operation was commenced by the direct method with Aveling's apparatus, but, as this was found not to answer, defibrinated blood to the extent of six ounces, containing a small quantity of spirits of ammonia, was injected. Although some alarming symptoms followed the operation, yet the patient survived, and two months later was still living, auscultation and percussion showing no change in the parts affected.

The second case was also a woman of middle age, who had been the subject of phthisis pulmonalis for about a year. Six ounces of blood were injected by the direct method by the aid of Aveling's improved two-bulb apparatus, a solution of salt being used in the vessel instead of ammonia. The patient survived the operation, but sufficient time had not elapsed at the date of reporting to enable any estimate to be made of the permanent result likely to be gained.

RECENT PAPERS.

A singular Case of Long-Continued Vomiting. (*The Medical and Surgical Reporter*, May 22, 1875.)

On some Cases of Prevaricolic Rash. By Dr. A. Sevestre. (*Journal de Médecine et la Chirurgie*, June, 1875.)

Treatment of the Cerebral Manifestations of Acute Rheumatism by Hydrate of Chloral. (*Gazette Hebdomadaire*, June 11.)

A Case of Myelitis ending in Recovery. By Dr. Lyman. (*Boston Medical and Surgical Journal*, May 20.)

Reflections on the Etiology and Symptomatology of Oedema of the Glottis. By Dr. Marboux. (*Revue Médicale de l'Est*, June 1, 1875.)

Scarlet Fever in the United States. By Dr. Minor. (*The Cincinnati Lancet and Observer*.)

SURGERY.

MEUSEL ON RESECTION OF THE KNEE AFTER GUN-SHOT WOUND.—In this contribution (*Berliner Klinische Wochenschrift*, no. 20, 1875), Dr. Meusel, of Gotha, reports two successful cases of resection of the knee-joint after gun-shot wound. The subject of the first case, treated by Dr. Meusel himself, was a man aged twenty-five years, who had been struck in the region of the left knee-joint by a ball from a revolver, fired at a short distance. The projectile entered about one quarter of an inch below the lower margin of the patella, passed through the ligamentum patellæ, and then downwards into the upper epiphysis of the tibia. The canal formed in the bone had smooth walls, and at its extremity, near the posterior surface of the tibia, the ball could be felt with a probe, but was so firmly fixed that it could

not be dislodged by bullet-forceps. When the patient was first seen on the day of the accident by Dr. Meusel, the knee was of the normal size, and free from pain. On the supposition that the joint had not been opened, the limb was fixed in a gypsum bandage. On the sixth day the joint commenced to swell, and two days later became much larger, and very painful, the patient at the same time being very feverish. On compressing the upper part of the joint, thin pus could be forced from the external opening. On the ninth day the joint was excised. A transverse incision was made below the patella, and carried through the wound in the skin made by the ball. A portion of the lower end of the femur, four centimètres in thickness, was removed, and a thin section taken from the head of the tibia, exposing the ball, which, together with a small piece of clothing, was extracted by forceps. The patella was left. On examination of the joint during the operation, it was found that the capsule had been wounded by the projectile. The synovial membrane was red, and thickened, and the joint contained purulent fluid. The tibia had not been splintered. At the eighth week there was firm union between the femur and the tibia, and six months after the operation the patient was discharged as cured, the limb being shorter than its fellow by about five centimètres. The patella remained movable, and could be pulled upwards by the action of the quadriceps extensor muscle.

The second case was one in which Professor Nussbaum performed primary resection of the knee of a young lieutenant, wounded by a Chassepot ball, in the Franco-Prussian war. The ball had passed inwards, near the external condyle, had shattered the lower portion of the patella, and had finally made its exit at the inner surface of the joint. The operation was performed within a few hours after the injury had been received. A transverse incision was made across the front of the joint. The upper half of the patella was left. The patient made a good recovery, the limb being shortened by about six centimètres.

W. JOHNSON SMITH.

DUPLAY ON ARTHRITIS DEFORMANS.—From the reports of Dr. Duplay's practice in the Hospital St. Antoine, by Dr. Gillette, published in the *Journal des Connaissances Médico-Chirurgicales*, we learn that Dr. Duplay treats this affection externally by tincture of iodine, revulsives, etc.; internally by sulphurous waters. Dr. Gillette observes that as a general rule, when the peculiar nature of an affection is not detected, it is very difficult to define its therapeutic indications; and this is precisely what occurs with arthritis deformans since the modern researches of which it has been the object. The intra- and extra-articular lesions belonging to it are known, such as the velvety condition of the cartilages, the arborescent productions of the synovial membrane, eburnation and transformation into *têtes d'ivoire*, ossifications of the ligaments, muscles, points and stalactites, foreign bodies; but the etiological conditions are ill-defined; sometimes a traumatic precedent (sprain, intra-articular fracture, luxation) does not admit of any doubt; sometimes a diathesis, principally of the rheumatic kind is discovered; sometimes nothing at all. Quite lately, however, a variety of arthritis called trophic arthritis has been described, which is developed under the influence of a change in the nervous centres. M. Duplay is inclined to regard arthritis deformans as the result of a trophic

disturbance, of an aberration of the nutrition of the joint, so that, in his opinion, the term arthritis is not a proper one, for the inflammation is certainly the least marked element. The treatment of this ill-defined affection is mostly in accordance with the complications it brings in its train. Thus it is frequently accompanied by very abundant articular effusions, fungosities, etc. Recourse must then be had to revulsives, blisters, methodical compression of the joint, painting with tincture of iodine, etc. M. Duplay advises that too much stress should not be laid on the immovability which is found to be so useful in the treatment of the other varieties of arthritis. In fact, in dry arthritis, notwithstanding the great deformity which is the fundamental characteristic of the disease the movements of the joints are partly preserved, though with the well-known rubbings and cracklings. Also in condemning such an articulation to a too prolonged immovability, it is deprived of the only benefit left by the affection itself, in the preservation of some movements; since every healthy object submitted to immovability partly loses its functions, and in a higher degree when it is in a diseased condition. M. Duplay looks on the iodised preparations, and the iodide of potassium in particular, as being to a certain extent efficacious; but a powerful modifying agent, which, unfortunately, can only be employed by persons in easy circumstances, is the treatment by taking the sulphurous waters at Plombières or Nérès for several seasons. These waters suit chronic rheumatism, and sometimes render great services to patients suffering from arthritis deformans.

ROBINSON ON THE NASAL DOUCHE.—In a paper read before the New York Medical Library and Journal Association (*New York Medical Times*), Dr. Beverly Robinson alludes to the wide-spread idea which is supported by some of the best authorities as to the frequent danger of using this appliance. Physicians are loth to abandon it, however, Dr. Robinson thinks, 'as it is thought to be so thorough in its work of cleansing the nostrils and pharynx.'

The latter generally received opinion is, however, an error in Dr. Robinson's opinion, and he endeavours to demonstrate the truth of his assertion by an examination of the relations between the stream thrown by the douche and the anatomical structure of the nasal passages.

He shows that the stream must issue from the nasal orifice of exit before it has flooded the upper part of the nose, and when from some obstacle the flow is interrupted, this flooding could only take place for a few moments, when the pressure in the naso-pharyngeal space would be such that the soft palate would give way almost immediately.

The effect of this would be that some of the liquid would pass into the stomach, or in the confusion of breathing get into the larynx. He does not believe that either the vault of the pharynx, the superior and middle turbinated bones, or the superior meatus are cleansed at all by the nasal douche.

ROBINSON ON COMPRESSION OF THE FACIAL ARTERIES FOR THE ARREST OF EPISTAXIS.—Dr. Beverly Robinson relates, in the *New York Medical Record*, a case of severe and obstinate epistaxis which, after recurring at frequent intervals during nine days, was at length arrested by compression of the facial arteries. Cold, astringents, and plugging, were first tried with very temporary success. The

facial arteries were then compressed against the superior maxillary bones just outside the alae of the nose by means of two small pads sewn at the proper distance apart on to a piece of tape, the ends of which were passed over the ears and tied together firmly behind the head. This quite controlled the bleeding, but for the first two days it recurred when the pads were removed; after that it ceased altogether, and the patient made a good recovery. Dr. Robinson adds that the blood in this case appeared to come from the septum; this part of the nose, which is not unfrequently the source of hæmorrhage, is supplied mainly by the terminal branches of the facial artery. Although he does not think that all cases of epistaxis can be cured by this plan, still its value was very evident in this case, and he thinks it may be useful in others.

J. W. LANGMORE, M.D.

RECENT PAPERS.

- Notes on Mal Perforant du Pied. By G. H. Boyland, M.A., M.D. (*Philadelphia Medical and Surgical Reporter*, May 22, 1875.)
 On the Treatment of Certain Cases of Stricture of the Urethra by a Combination of Internal and External Division. By T. Annandale, F.R.S.E. (*Edinburgh Medical Journal*, June, 1875.)
 Hypertrophic Lengthening of the Right Tibia as a Result of Chronic Osteo-Periostitis. By Professor Boeckel and M. Tournet. (*Gazette Médicale de Strasbourg*, June 1.)
 Clinical Study on Fistula in the Anus: Its Treatment by means of Linear Section, a new plan. By Dr. Jules Felix. (*Annales de la Société de Médecine de Gand*, May, 1875.)
 On the Plan of Curing Vesico-Vaginal Fistulas by Gradual Reparation. A Study by Professor Luigi Amabile, analysed by Dr. Deneffe. (*Bulletin de la Société de Médecine de Gand*, May, 1875.)
 Varicocele and its Curative Operation by Subcutaneous Wire Loop. By Richard Barwell. (*Lancet*, June 12.)
 On the Treatment of Deviations of the Vertebral Column. By M. Pravaz. (*Lyon Medical*, June 6.)
 Division of the Tendo Achillis in certain Injuries about the Ankle. By Dr. Gay. (*Boston Medical and Surgical Reporter*, May 27, 1875.)
 On Traumatic Varices of the Abdominal Walls. By Dr. de Beauvais. (*Gazette des Hôpitaux*, June 8, 1875.)
 Phosphorus Necrosis: Extraction of a Sequestrum representing the Half of the Lower Jaw Nine Years after the Commencement of the Necrosis. By Dr. Desprès. (*La France Médicale*, June 5.)
 On the Treatment of Permanent Flexions of the Fingers. By Dr. Auger. (*La France Médicale*, June 2.)

MATERIA MEDICA AND THERAPEUTICS.

OXAMENDI ON THE THERAPEUTIC ACTION OF THE OLEUM ALEURITIS TRILOBÆ.—Dr. Calixto Oxamendi gives the therapeutic history of a new agent which may be considered as a good substitute for castor-oil (*Anales de Medicina de la Habana*, 1874).

The 'Aleuritis triloba' is a large tree of the euphorbiaceous family which grows principally in India and in all the intertropical countries. It is commonly designed in India under the name of 'Candle-nut tree' or 'Candleberry.'

The oil produced from the nuts of this tree is used for different industrial purposes. The native of Ceylon calls it 'Kekune oil' and it is known in England under the names of 'Nut Oil' or 'Artist's Oil.'

Very little has been said about the therapeutic

properties of this plant; nothing can be found on the subject in the works treating of *materia medica*. A little notice is, however, given in *Griffith's Medical Botany*. This author says: 'The nuts of the *aleuritis triloba* are considered as aphrodisiac when used in small quantity and in a dry state; they have laxative properties when taken in larger quantity and in a fresh state.' In one of his *Annales de Thérapeutique*, M. Bouchardat says that the oil of *aleuritis triloba* has purgative properties in a dose of thirty grammes. Renato de Grosourdy expresses the same opinion in his work on medical botany, but he thinks the oil must be used in a dose of two ounces (sixty grammes) in order to move the bowels.

Following the indications of Bouchardat and Grosourdy, Dr. Oxamendi has employed the oil of *aleuritis triloba*, and his results are not quite conformable with those arrived at by his predecessors. Having once given this medicine to a healthy negro woman, he obtained an effect much stronger than he expected. By subsequent experiments, he arrived at the conclusion that this oil must be employed in much smaller doses, and that half an ounce is quite sufficient to move the bowels of an adult.

The oil of *aleuritis* may be used with advantage as a substitute for other aperients. It greatly resembles castor-oil in its effects on the bowels, and it is by no means disagreeable; it has a pleasant taste of hazel-nuts. It acts quickly (about three hours after its administration) and very gently, without giving pain and griping.

What is the physiological action of this aperient? Dr. Oxamendi thinks the laxative effects are not only due to the disturbance produced in the bowels by the oil itself, but also to a special resin which irritates the intestinal mucous membrane.

The walnuts of the *aleuritis triloba* are so oleaginous that they yield nearly half their weight of oil. This valuable agent may be also used in emulsion. The dose of the oil is two drachms for a child or half an ounce for an adult. The following mixture is recommended by Dr. Oxamendi:

R.	Olei nucis <i>aleuritis trilobæ</i>	. . .	℥ss
	Gummi arabici	. . .	℥iij
	Aq. communis	. . .	℥iij
	Sacchari albi	. . .	℥ss
M.			

Good results have been obtained by making frictions with the following liniment over the abdomen in cases of rebellious constipation or abdominal pains:

R.	Olei nucis <i>aleuritis trilobæ</i>	. . .	℥ss
	Tinct. cantharid.	. . .	℥iij
	Ammon. carbon., aa	. . .	
M.	Linimentum.		

VALENTI Y VIVO ON THE ANTAGONISM BETWEEN STRYCHNIA AND MONOBROMIDE OF CAMPHOR.—Dr. Valenti y Vivo has made a series of researches on the supposed antagonism between these two substances; and has arrived at the conclusion that monobromide of camphor may be considered as an antidote for strychnia. According to Dr. Valenti, the following conclusions are well established (*Siglo Medico*, April 18, 1875).

1. Twelve dogs, after taking a fatal dose of strychnia, were saved by the use of bromide of camphor. The experiments were practised in a satisfactory manner, with crucial tests.

2. The tetanic convulsions produced by strychnia may be reduced in force and frequency by the use of

bromide. The action of the antidote is rapid and sure.

3. The hyposthenic action of the bromide mitigates the reflex activity of the poison. The tonic convulsions are converted into clonic.

4. The physiological antagonism is comparatively limited. A strong dose of bromide of camphor is necessary to antagonise the effects of strychnia.

5. The bromide acts on the sympathetic nerve; this is demonstrated by the myosis and the cardiac paralysis which were observed after its administration.

6. After an overdose of bromide, the united effects of the poison and the antidote produce death by syncope; when death takes place during the strychnism and without the antidote, cardiac impulses are observed *post mortem*; when it takes place after and through the use of bromide, cardiac impulses are never observed.

7. The experiments show that it is preferable to introduce the bromide by gastric ingestion, and in small and repeated doses. The subcutaneous method, employed in some experiments, has not given satisfactory results.

Dr. Valenti points out the importance of this antagonism in practical medicine. He thinks bromide of camphor may be used with advantage in cases of poisoning by strychnia, in quantity varying from four to six grammes, given in small doses.

[Dr. Valenti's experiments, if correct, show us a new antidote which may prove useful in therapeutics. Considered from a physiological point of view, this antagonism presents a great analogy with the antagonism observed by Dr. Hughes Bennett between chloral and strychnia ('Report of the Committee of the British Medical Association'). It may be remembered that Dr. Bennett's conclusions were as follows. 'Chloral-hydrate mitigates the effects of a fatal dose of strychnia, by depressing the excess of reflex activity excited by that substance; while strychnia mitigates the effects of a fatal dose of chloral by rousing the action of the spinal cord; but it does not appear capable of removing the coma produced by the action of chloral-hydrate on the brain.'—*Rep.*] A. LUTAUD, M.D.

THERAPEUTIC FORMULÆ.—The following are taken from the *Philadelphia Medical Times* of May 15, 1875.

Rheumatism: R Trimethylamini, ℥iv ad ℥viiij; Syr. zingiberis, ℥j; Aq. menth. pip., ℥j.—M. Take at intervals of one to three hours until pain is relieved.

Administration of Croton-Chloral Hydrate.—R Croton-chloral, gr. xxx; Glycerinæ, ℥jss; Ext. glycyrrhiz., ℥j; Aq., et syr. simpl., aa ℥jss.—M. Tablespoonful *pro re nata*.

Pills of Croton-Chloral.—R Croton-chloral., Pulv. glycyrrhizæ, Confect. rosarum, aa gr. xv.—M. Divide in pilulas xx.

In Pityriasis.—R Ol. theobromæ, Ol. ricini, Ol. amygdalæ, aa ℥v; Hydrarg. sulphat. flav., gr. xv.—M.

Lotion in Erysipelas.—R Camphoræ, Acid. tannic., aa ℥j; Etheris, ℥j.—M. Bathe the parts adjoining the diseased skin every two or three hours, or oftener.

Diarrhœa Mixture.—R Olei ricini, ℥xxiv; Sp. chloroformi, ℥jss; Sol. morphinæ mur., ℥j; Pulv.

gum. acaciæ, ʒijss; Syrupi, ʒss; Aquæ, ad ʒiv.—M. A dessertspoonful every hour and a half until the bowels are quieted.

Purgative in Dyspepsia accompanied by Constipation.—℞ Mass. hydrarg., Ext. colocynth. comp., āā gr. xxx; Pulv. ipecac., gr. iij.—M. Divide in pilulas xij. Two of these are to be taken every second or third night, and followed by a Seidlitz powder the next morning.

Chloral Suppositories.—The production of a chloral suppository containing a sufficient proportion of this drug to cause sleep has heretofore been deemed impossible. M. H. Mayet, pharmacien, of Paris, has, however, devised the following formula, by which he manages to get forty-five grains of chloral in each suppository: ℞ Ol. theobromæ, gr. xxx; Cetacei, Pulv. chloral., āā gr. xlv. For one suppository. These suppositories are of good consistence, and may be easily put into use.

Injection for Cystitis.—℞ Sodii hyposulphit., ʒiv; Aq. destillat., lb. j, ʒiv.—M. This solution may be employed in five injections, in chronic catarrh of the bladder, when there is pain and the carbolic acid injection cannot be employed.

Local Anæsthetic.—℞ Pulv. camphoræ, ʒijss; Ætheris sulph., ʒv.—M. Rub into the skin for a few moments at the locality where it is desired to produce anæsthesia.

In Diphtheria.—℞ Pulv. cubebis, Aq. menth. pip., āā ʒv; Syr. aurantii flor., ʒvij; Aquæ, ad fʒiv.—M. One or more tablespoonfuls for an adult, every three or four hours.

Antigastralgie Drops.—℞ Tinct. nucis vomicæ, Tinct. castorei, āā ʒss.—M. Two drops during the paroxysm, in half a wineglass of infusion of chamomile.

Camphor-Ointment.—℞ Pulv. camphoræ, gr. xv; Glycerinæ, q. s.; Axungiæ, ʒj. Useful in erythema and in vesicular and squamous affections of the skin.

Gargle in Syphilitic Ulcerations.—℞ Hydrarg. chlor. corros., gr. ij; Glycerinæ, ʒiv; Aquæ, ad fʒvij.—M.

RECENT PAPERS.

On Arsenic and Iodine. By M. E. Labbé. (*Le Mouvement Médical*, June 5.)

Digitalis and Ergot as Vaso-Contractors in Local Congestions, with and without Rupture of Vessels. By Dr. Myrtle. (*Medical Press and Circular*, June 9.)

OBSTETRICS AND GYNÆCOLOGY

FRANKEL ON A NEW METHOD OF TREATING SPASTIC UTERINE CONTRACTION DURING THE SECOND AND THIRD STAGES OF LABOUR.—The following article, by Dr. E. Frankel, of Breslau, has been translated from the *Archiv für Gynäkologie*, Band vii., by Dr. W. H. Taylor, M.D., Professor of Obstetrics, Miami Medical College, Cincinnati.

Spastic contraction of the uterus, whether of the internal os, the lower segment, or of the entire organ (tetanus uteri), presents a serious obstacle to the performance of operations which are sometimes necessary for the completion of the parturient act.

Tetanus uteri, before the birth of the child, is especially frequent in cases of contracted pelvis, where the membranes have ruptured early, and where

long-continued expulsive efforts have failed to deliver the child. Frequently, in these cases, the anterior part of the head or the face presents, remaining movable above the brim. Version is indicated, provided the contraction of the pelvis is not too great; but the attempt at version fails because the tetanic contraction of the uterus around the child precludes the introduction of the hand of the operator or the turning of the child without the most imminent danger of the rupture of the uterus. Similar difficulties are encountered in neglected cases of transverse positions in contracted pelvis, or in normal pelves, where the abnormal position is not recognised early, or where the liquor amnii has been discharged long before the arrival of the obstetrician. In these cases, either the whole uterus firmly compresses the body of the child, or the lower segment of the uterus has rigidly contracted around a prolapsed part, e.g. a leg or an arm. Formerly, under such circumstances, the advice was given to dismember the prolapsed part, it being the supposed impediment to delivery; at the present time, not unfrequently prominent obstetricians advise, in cases of head presentation, with moderate contraction of the pelvis and tetanus uteri, that perforation and extraction with the cranioclast be resorted to, on account of the asserted impossibility of turning, and that, in transverse presentations, evisceration or decapitation be performed.

I will not deny the necessity of the latter operation in certain cases; but I must assert that, in about one thousand abnormal labours which, as assistant to the Breslau polyclinic, I have attended, in some of which there was considerable contraction of the pelvis, and under the most unfavourable circumstances, I have never resorted to this horrible operation. By the application of the method which I shall describe, I have succeeded in performing version where experienced and skilful colleagues have regarded it as impossible and embryulcia as unavoidable.

No less serious is spastic contraction of the uterus in the period of delivery of the after-birth. Usually, in these cases, we have to deal with partial contraction—stricture in its limited sense—which sometimes occurs at the internal os, sometimes involves the whole isthmus uteri. It originates, usually, in improper attempts to remove the placenta, either by too early and great traction on the cord, or by rough efforts at expression.

A third series of cases, by far less frequent, occurs, without any fault of the accoucheur, developing spontaneously; viz., where the placenta is partially adherent. In such cases, a portion of the placenta is expelled from the uterus, another portion adhering, the intermediate portion, acting as a foreign body, induces violent contraction of the isthmus uteri, and develops the condition known as incarceration of the placenta.

In all these cases hæmorrhage occurs, and often to a very alarming extent. I cannot agree with Hüter (*Compend. der Geburtsh. Operationen*, s. 308), that there is a difference in the severity of the hæmorrhage, according as it is associated with atony or spastic stricture in the after-birth period. I have found no such difference in practice, and theoretically do not regard it as probable, because I frequently find spastic stricture of the isthmus associated with atony of the body and fundus. It is true, that in such cases the external hæmorrhage may be limited, as a coagulum may easily impede

the flow of blood; but proportionally greater will be the internal metrorrhagia—a condition which manifests itself by the unusually high position of the uterus.

Spasm of the isthmus uteri occurs almost exclusively with mature births. Neither Hüter nor I have seen a case in a premature delivery. In premature births, especially between the twenty-sixth and thirty-second week, and where there is a macerated foetus, there is often excess of liquor amnii. Now, if this condition be associated with a malposition—*e.g.*, transverse—the membranes rupture long before the lower portion of the uterus is sufficiently dilated for the delivery of the child; the heretofore greatly distended uterus suddenly contracts, the small foetus is firmly compressed, and the introduction of the hand of the operator is rendered impossible. Finally, I mention the spastic constriction by the neck of the uterus of the after-coming head in breech cases, by which the extraction of the head is prolonged, and the danger to the child greatly increased.

What, now, are the means recommended by the text-books and adopted in practice, by which to combat these various conditions? They may be placed in two categories, according as an urgent demand for delivery—*e.g.*, violent hæmorrhage—exist or not. In the latter case the elder school resorted to the whole list of antispasmodics—*i.e.*, castoreum, asafetida, warmth in the form of baths, injections, and fomentations. (According to my experience, the two latter act as irritants, and increase rather than allay spasm.) The nauseants (ipecac. and tartar emetic) have been abandoned; also, with our views of puerperal fever, venesection to syncope. Anæmic persons exhibit a very diminished power of resistance to surgical fever, and in the acute anæmia of lying-in women the closure of the uterine sinuses is the least perfect. There remains, therefore, for these cases only the use of opium internally, by clyster, or morphia by subcutaneous injection; and chloroform. Opium and morphia are often valuable, but not always. Opium requires too long time (one or two hours) for its full effects, for us to rely on it in urgent cases, and we have seldom seen the effects of large subcutaneous doses of morphia in less than half an hour, and often longer, as Lebert, who introduced it into midwifery practice, admits.

Nothing but chloroform remains, and even deep chloroform narcosis does not relieve the spastic rigidity of uterine contraction, and, according to Spiegelberg and others, the irritability of the uterus is very slightly diminished. During the anæsthesia the pains are weaker, the intervals are longer, and the chief effect is that the expulsive action of the abdominal muscles ceases entirely. The preceding are the methods resorted to where there is no urgent demand for delivery; but where the delivery must be speedily effected—*e.g.*, where there is incarceration of the placenta in the lower segment of the uterus, with dangerous bleeding—no time is allowed for the action of antispasmodics, the various forms of heat or opium, to be established.

Chloroform is recommended by many—*e.g.*, Schroeder in his text-book; but we have shown above, and have learned from experience, that it is of little value in such cases. Others—Hüter, for instance—fear the effects of chloroform, for the reason, as they assert, that the use of chloroform in anæmic women is always attended with danger, and

further, that *post partum* hæmorrhage more readily supervenes after chloroform.

These fears are purely theoretical. Ask the military surgeon if, in cases of wounds of large vessels and profuse hæmorrhage, he hesitates for a moment to administer chloroform to secure quiet for the performance of the needed operation? It is yet to be proven that chloroform narcosis is more dangerous to anæmic women than anæmic men. In hundreds of cases, in which chloroform was used, I have never seen hæmorrhage during or after separation of the placenta, where, in other respects, the conditions of delivery were normal, and it is inexplicable how chloroform which, during the expulsive stage, does not arrest uterine contraction, should in the after-birth period produce atony of the uterus. Heretofore there has been no other resource, in urgent cases, than the gradual dilatation of the stricture with the fingers. This enfeebled the hand, and unfitted it for further operative procedure; and second—and chief objection—it is a prolonged and intense irritation of the most sensitive part of the puerperal uterus; and when, as in this case, the organ is in a condition of intense rigidity, is not without malign influence on the convalescence after delivery. Equally injurious are its effects upon the parametric connective tissue with its enormous development of blood-vessels. Para- and perimetritis are the frequent consequence of this gradual manual dilatation of the constricted isthmus uteri. Consequently, this method is also objectionable.

It was, therefore, desirable to find a therapeutic combination which, while it secured the greatest relaxation of the uterus, excluded the danger of subsequent hæmorrhage, and that was so speedy and reliable that, in urgent cases, it could be used without such loss of time as to jeopardise either mother or child.

Until recently, I believed I had found this combination in the subcutaneous injection of morphia (fifteen milligrammes to three centigrammes) followed by chloroform anæsthesia. I was led to resort to this method by an article by A. Martin, upon 'Chloroform anæsthesia prolonged several hours by the subcutaneous injection of narcotics,' *Bayer. ärztl. Intelligenz-Blatt* xliv. 1863; and especially by Cl. Bernard's article in the *Bull. Génér. de Thérap.* 1869, p. 241, 'Upon the Physiological Effects of Morphia, and their Association with those of Chloroform.' Bernard shows that in dogs, who, it is well known, are with difficulty brought under the influence of chloroform, if five to fifteen centigrammes of muriate of morphia be injected subcutaneously, that, during the early stage of the effect of the morphia, small quantities of chloroform, which, under other circumstances would not produce narcosis, are sufficient to secure its full anæsthetic effect. The animal can be maintained in this condition for half a day; but if the inhalation be interrupted, sensibility returns.

I believed that from this proceeding a twofold advantage was derived for the woman in labour. 1. By the subcutaneous injection, the most speedy influence of the morphia against the uterine contractions was obtained, whilst the chloroform, in addition to a limited influence over the action of the uterus, arrested the action of the abdominal muscles, thereby facilitating any subsequent operation. 2. As in the administration of chloroform five to ten minutes after injection of morphia, a smaller quantity was required to induce complete anæsthesia, I hoped to lessen the danger which always attends

profound chloroform narcosis. These physiological inferences were in a great degree substantiated by clinical experience. I frequently had opportunity to observe where I could scarcely force the end of the finger through the isthmus uteri, that, after morphia injection and subsequent very slight chloroform narcosis, the sharp-edged rigid ring relaxed, and the whole hand could pass the constriction without difficulty. I have thus succeeded twice in performing version, long after the liquor amnii was discharged, where other operators had made futile attempts, and I have always succeeded in speedily overcoming the constriction of the neck in cases of incarcerated placenta, with profuse hæmorrhage, and have removed the placenta, adherent or not, and in no case did serious bleeding occur from subsequent relaxation of the uterus. On the contrary, chloroform narcosis, following injection of large doses of morphia, requires to be carefully watched, because of the great liability to asphyxia.

As I generally operated alone, this latter circumstance led me to seek for some agent whose combination with chloroform would be less dangerous, and more manageable by the physician without an assistant. Further, I had a case where there was a moderate degree of contraction of a simple flat pelvis: it was a first pregnancy—a face presentation. The os being fully dilated with chloroform anæsthesia, I performed version. In the attempted extraction, the lower segment of the uterus contracted so firmly around the head that the os appeared at the vulva when slight traction was made. The inspiratory efforts of the child demanded speedy delivery. I injected three centigrammes of muriate of morphia, and then gave a new dose of chloroform. Despite these means, more than five minutes elapsed before sufficient relaxation took place to allow the extraction of the child without danger of laceration of the lower portion of the uterus. The fœtus, in the meantime, was asphyxiated, and died soon after birth. This case was a new incentive for me to seek for a more speedy means of relaxing the uterus than the combination of chloroform and morphia.

I directed my attention to the preparations of belladonna, to which the older obstetricians ascribed great power in overcoming spasm, when locally applied; further, the good results obtained by Breslau in overcoming spastic uterine contraction by injection of atropine, are well known (*Wiener Med. Presse*, 1866, 3). This method fell into discredit because Spiegelberg reported a case which he had observed, where, after injection of $\frac{1}{40}$ gr. of atropia sulph., a very dangerous degree of atony of the uterus supervened (*Carstatt's Jahrb.* 1866). This, however, did not prove that atropine was not adapted to the purpose—merely, that in the particular case too large a dose had been injected, so that, not relaxation, but paralysis of the uterine muscular fibre occurred; for, through the researches of Bezold and Blöebaum, the action of this alkaloid upon organic muscular fibre has been determined—viz., that the irritability of the intestine, the uterus, bladder, and ureters is impaired by very small doses, and entirely destroyed by large, the result being the same whether the poison act through the blood or from local application. (*Untersuch. aus dem Physiol. Laboratorium in Würzburg*, 1867).

I believe, also, that the dose given by Spiegelberg was too large, the maximum quantity which I have given subcutaneously being one milligramme, and in the many cases in which I have used it, I have never

seen a dangerous atony nor hæmorrhage supervene, where in other respects the usual care was exercised in the placental and post-placental periods. I also sought to obtain the effect of large doses of atropine, by a combination of small doses of atropine and muriate of morphia. Such an attempt may appear to have been problematic, because of the generally assumed antagonism between atropine and morphine.

This antagonism prevails only to limited extent—e.g. in the effect of the two agents on the pupil and on the vascular system; and by a number of physiologists, all antagonism is denied. Harley's conclusions, from experiments with the two alkaloids separately and combined, upon dogs, horses, and men, are that no antagonism exists, and that the effects are more intense and prolonged when the two are used together, and that their effects are cumulative.

My own experience confirms the opinion that on the uterus their effects are cumulative. Very firm strictures relaxed in, at latest, not more than five minutes, and often immediately after subcutaneous injection. To remove the pressure of the abdominal muscles, I almost always allowed a few inspirations of chloroform, three to five minutes after the injection, and have been astonished at the ease with which narcosis supervened; what small quantities of chloroform were required; how quiet, and how easily managed by the operator without assistance; how regular the pulsations of the heart and the respiration were; and how seldom strangling and vomiting occurred. The asphyxia, which I have seen to an alarming degree when chloroform and morphine were used, has never been observed after the use of the combination of morphia and atropia.

The results, therefore, of physiological experiment and clinical observation are, that chloroform with atropine and morphine produce a certain, speedy and safe narcosis, the quantity of chloroform required being small; that chloroform and morphia produce anæsthesia more speedily than chloroform alone, but on account of the tendency to asphyxia it is dangerous and demands most careful watching; and finally, as a result of the foregoing observations and experience, I propound the following propositions:

1. In spastic contractions of the uterus, either partial or general, during either the second or third stage, the combined subcutaneous injection of muriate of morphia and sulphate of atropia, followed by chloroform narcosis, is the most speedy, safest, and least injurious means of relieving the constrictions and facilitating subsequent operation.

2. With appropriate doses (not over one milligramme of atropine), and otherwise proper management of the delivery of the placenta, there is no increased danger of atony of the uterus, and consequent hæmorrhage.

3. Chloroform narcosis is rendered easier and safer by preceding atropia (one milligramme) and morphine (fifteen milligrammes) injections.

RECENT PAPERS.

On Dr. Copeman's Novel Treatment of Obstinate Vomiting in Pregnancy. By Dr. Graily Hewitt. (*British Medical Journal*, May 29.)

Influence of Posture on Women. By Dr. Aveling. (*Obstetrical Journal*, June, 1875.)

Note on Intrauterine Craniometry. By Dr. Matthews Duncan. (*Edinburgh Medical Journal*, June, 1875.)

Report of, and Observations upon, a Case of Puerperal Tetanus. By Angus Macdonald, F.R.S.E. (*Edinburgh Medical Journal*, June, 1875.)

Puerperal and Postpuerperal Hæmorrhages. By Dr. Féréol. (*Mouvement Médical*, June 5.)

On the Influence of Diseases of the Heart on the Female Functions. By Dr. Duroziez. (*Archives de Tocologie*, June, 1875.)

On Ten Cases of Uterine Tumour. By Dr. G. Mo. (*Gazzetta delle Cliniche*, June 8.)

PSYCHOLOGY.

BRIERRE DE BOISMONT ON THE TREATMENT OF MELANCHOLIA.—Dr. Briere de Boismont (*Journal of Psychological Medicine*, April, 1875) gives an able summary of the treatment proposed by him of this form of mental disorder.

A certain number of melancholic cases recover, once, twice, and thrice; some without having recourse to medical aid, and others by availing themselves of such assistance. Those who recover at home are especially those who preserve their sentiments of affection, do not feel any estrangement from their family, and do not manifest any dangerous tendency.

In most instances these patients, after several attempts which date from more or less distant periods, find their symptoms aggravated. The affections are perverted, and their relations and their homes inspire them with profound dislike. They are haunted by the most painful and terrifying insane ideas; they have hallucinations and illusions of the same kind; they have no desire for food, and they endeavour to destroy themselves. When they are taken in hand with these antecedents, some of them may still be cured. Most of them have long attacks; their faculties become altered more and more, and at last they become incurable.

At the commencement of the malady recourse may be had to travelling, or to some intellectual, artistic, or physical employment; and not unfrequently success is achieved by the employment of these means, which are equally useful in the period of convalescence.

A large proportion of these cases are suicidal. Out of 417 patients, 122 had made one or several attempts at self-destruction.

Dr. Boismont states that prolonged warm baths, with or without irrigations, lasting from one to two, three, four, or five hours, have proved beneficial when the malady was recent, with agitation, want of sleep, heat of skin, and refusal of food. If the patients be apathetic, unwilling to take any food, attempting suicide, passing their motions under them, then the half-warm bath, with cold affusions by sprinkling (*en arrosoir*), or in the form of the shower or the douche, is often beneficial.

Of the 108 patients who went out cured, the greater part received great benefit from the baths, the duration of which was in proportion to the effects produced. Dr. Boismont took notes of seventeen cases cured by this mode of treatment. One of them recovered his reason the third day, having had no previous attack. Nine others, similarly circumstanced, were convalescent at the end of a fortnight.

It is often indispensable to use purgatives, in addition to the baths; but the drugs must be disguised, because melancholic patients imagine that they are being poisoned. Tonics, chalybeates, and quinine, are also of great service.

A powerful auxiliary in the treatment is family life (*vie de famille*). Dr. Boismont considers that it is woman who takes the most important part in the

management of this system, in which the influence of the affections is a positive good. A man's character cannot bend itself to this kind of slavery.

Dr. Boismont insists upon the importance of the demeanour of the physician in combating the delusions of melancholia. A suitable observation, or a ready reply, is very efficacious, at an opportune moment, in arresting the attention and changes the course of the ideas. Some interesting anecdotes are related in illustration of this point.

The writer also touches upon a form of treatment somewhat unusual in this country. Speaking of the benefit derived by convalescent patients by the departure from the asylum, he mentions the case of a music-master, who, after an attack of melancholia, became more tranquil, though still retaining some extravagant notions. This patient returned to his home and gave his music lessons during the day, but returned to the asylum to dine and sleep. When the acute stage is passed and the malady remains stationary, when there are no evil tendencies, and the patient wishes to return to his own home and revisit his relatives, his wish ought to be granted.

Visits of relations, which are justly regarded as dangerous in the acute stage of the disease, when it is still at its height, may, on the other hand, produce a marked improvement when the patients wish for them, and even in some cases when they occur unexpectedly.

Dr. Boismont treats cases of refusal of food by making a disagreeable impression on the patient.

If the refusal of food be obstinate, and founded on an insane notion or hallucination, if the breath be fetid, if there be no febrile disturbance, then forcible alimentation is indispensable. The instrument most generally employed is the œsophageal tube, either simple or modified, of MM. Baillarger and Blanche. The silver mouthpiece of M. Billod is also useful. Dr. Boismont's method of disgusting the patient with the process of feeding is as follows.

A straight jacket is put on the patient, and he is fixed in an arm-chair, from which he cannot move, called a 'fauteuil de force,' or he is laid on the bed. A tube armed with an iron rod, slightly curved at the lower end, is then introduced into one of the nasal fossæ, and is passed as far as the back of the mouth, when the rod is withdrawn.

Dr. Boismont does not endeavour to pass the tube into the œsophagus, because that is not the object in view. An assistant closes the mouth with his hand or a napkin several times folded, another assistant applies his fingers on the nostril which is free, and the broth, tapioca, chocolate, etc., is poured in with the aid of a funnel, the end of which is introduced into the tube. An injecting syringe may also be used, the end of which is placed in the tube.

Forcible alimentation is almost always unsuccessful in the febrile state.

The refusal of food may sometimes depend upon separation from the domestic circle. In two cases, in which this cause was clearly proved to exist, Dr. Boismont sent away the patients to their homes, and this course was attended with success.

A happy thought may occasionally be sufficient to overcome this obstinate refusal of food. One melancholic, who had refused food for six days, at the sight of more numerous dishes and food more delicately prepared than usual, smiled, took what was offered to him, and ate with a good appetite. The crisis was over, and did not re-appear.

For suicidal tendencies, which are so rapidly

carried into execution by the French, Dr. Boismont employs a straight jacket and cuffs in extreme cases. Some important remarks are made on the utility of moral treatment, a knowledge of the different expressions of the face being especially insisted on.

Finally, Dr. Boismont recommends that we should always speak to the patients according to the excellent advice of Daquin, in the language of reason, even when they do not appear to understand it.

H. SUTHERLAND, M.D.

RECENT PAPERS.

On General Sensibility and its Changes in Melancholic Affections. By Dr. Seinal. (*Annales Médico-Psychologiques*, May, 1875.)

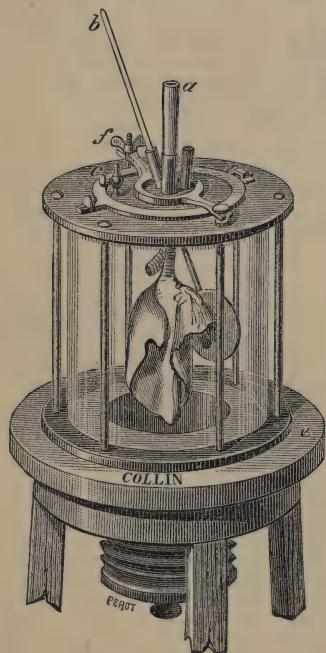
On Hysteria in the Male Subject. By Dr. Paul Fabre. (*Ibid.*)

On Alcoholism and the Persecution-Hallucination. By Dr. Cullerre. (*Ibid.*)

NEW INVENTION.

THE SPIROSCOPE.

M. Woillez lately read a paper at the meeting of the Academy of Sciences, in which he referred to some experiments made by him in 1854 on the study of the auscultation, anatomy, and physiology of the lung. For this purpose, he at that time invented an apparatus which he did not perfect until now.



The instrument as figured consists of the following pieces :

a. Tube on which the lung is fixed in the middle of the apparatus.

b. A movable spatula intended to approximate the lung to the walls of the glass cylinder for auscultation.

c. Cock to facilitate the working of the bellows placed inside the instrument.

d. A cylindrical bellows intended to produce a vacuum in the cylinder.

e. Stand for the apparatus.

f. Traverse to hermetically close the lid.

M. Woillez stated that the researches from a pathological point of view are as yet incomplete. One question notably has remained untouched, which is that of auscultation performed at the level of the lung immersed in the spiroscope as it is in the pleura in cases of liquid effusion, or in pneumo-hydrothorax, of which the conditions may be artificially produced.

From the anatomical point of view, the spiroscope produces perfect insufflation of the lung, which can receive five litres of air and subsequently be dried. Instead of air, coagulating substances which retain the impress of the air-cavities, or liquids which act chemically so as to facilitate microscopic studies, may be injected. The injection of the pulmonary vessels by aspiration by means of the spiroscope has not hitherto given satisfactory results.

Physiology as well as anatomy may be benefited by the use of this apparatus. It demonstrates that aspiration is the most perfect means of obtaining easy penetration of air into the lungs, which explains how half a litre of air can suffice for both lungs in ordinary respiration, as physiologists have established. The necessity for the permanent extension of the lung, even in the most energetic expirations, is clearly proved by the action of the spiroscope, which also permits demonstration of the number of respiratory movements necessary to entirely renew the air contained in the lungs. M. Woillez also referred to the best treatment to be applied to persons drowned or asphyxiated ; a question which might be better resolved than it has been up to the present time, by utilising the principle on which the spiroscope is based. The facility with which the external air penetrates into the lungs when, instead of insufflating them, these organs are first dilated, as is the practise with the spiroscope, seems in fact to prove that the best means of re-establishing respiration in asphyxiated persons would be external aspiration performed on the thoracic wall to produce their dilatation, and on the abdomen to produce the same effect on the diaphragm.

CORRESPONDENCE.

ON NERVOUS DISSOLUTION.

(To the Editor of the LONDON MEDICAL RECORD.)

SIR,—A paragraph on paralysis of the palate and vocal cord from disease of the eighth nerve has, I find, strayed into the account you give of my remarks on Nervous Dissolution. It might, indeed, have been in place as an illustration had there followed a reference to lack of inhibition of the heart as a consequence of paralysis of the pneumogastric. An error of more importance is the substitution of the word 'purposely' for 'purposeless' in the last paragraph but one. Loss of inhibition is but another name for what, after Anstie and Thompson Dickson, I call 'loss of control.' I now write to send a quotation from one of Rutherford's Lectures (*Lancet*, April 29, 1871) which expresses the same idea. After speaking generally of inhibitory nerves and centres, Rutherford says, 'I have just alluded to the inhibition of thought. This is an important point, and worthy of your deepest consideration. When we control our thoughts, words, and deeds we voluntarily exercise an inhibitory power ; probably we call into play certain inhibitory centres in the brain. These centres can, by exercise, attain to great importance. In some individuals they seem to be much more powerful than in others ; and one of the earliest signs in many cases of insanity is a diminution in the inhibitory power of these

centres. The mind is rendered thereby less able to control the nerve-processes concerned in thought and muscular movement.

The last volume of the West Riding Asylum Reports contains a masterly article by Lauder Brunton on Inhibition.

The Principle of Dissolution taken with the Principle of Loss of Control seems to me to be of value in the scientific investigation of mental diseases.

J. HUGHLINGS JACKSON.

MISCELLANY.

THE number of Professor Huxley's students in Edinburgh University now amounts to upwards of 350.

DR. ROBERT J. LEE has been elected by the board of the London Temperance Hospital one of the visiting medical officers of that institution.

LADIES FOR LADIES.—Madame Brès, who last week read a thesis before the Paris Faculty of Medicine and obtained a Doctor's degree, is reported to have been appointed physician to the Sultan's harem at Constantinople.

PRACTICAL BOTANY.—The Paris *Figaro* relates an amusing story of a late medical examination. A student had failed in everything. Botany alone remained. The good-natured professor took up a specimen of the plant tobacco, and asked what it was. The student looked at it with puzzled gaze, but knew it not. 'Something you take many times a day,' said the professor gently. 'I have it,' shouted the student, 'it's absinthe.'

LOYALE A MORT.—Out of sixty-four medical graduates of Michigan University who were lately examined, twelve were ladies, some of whom passed with honours. In one instance, says a contemporary, a husband and wife, who had been studying together, were separated by the fatal verdict of the judges; the wife was accepted, the husband was rejected in spite of the fact that he was the graduate of a Methodist college, a bachelor of laws, a master of arts, and had studied for some years in the universities of Europe. Like a loyal wife, nevertheless, the woman preferred to share her husband's misfortune, and went away with him, not wishing to receive an honour which he could not share.

WHOLESALE AND FOR EXPORTATION.—An article in the *Melbourne Medical Record* for Feb. 27, states that in Victoria, with a population of 700,000 inhabitants, there are 700 medical men, or one to every thousand people. The writer proceeds in a somewhat amusing way to show how this redundancy of medical men, or, according to his quotation from Voltaire, 'things on two legs putting drugs they know but little about into the bodies they know nothing of,' leads to an extraordinary exiguity of fees. He even speaks of the Vice-Chancellor of the Melbourne University as having given advice to a club patient for the very modest fee of sixpence.

THE Prussian order *pour le mérite* for science and art has been conferred by Royal decree upon three eminent foreigners, namely, the great physiologist Theodore Schwann, of Liege, Dr. George Bancroft, the historian, who was for many years American Minister at Berlin, and Professor Stokes, of Dublin. German members of this order can be appointed only when a vacancy arises, the number being strictly limited to thirty. Theologians are expressly declared ineligible to this distinction. Alexander von Humboldt was the first chancellor of the order, the second was the legist Savigny, the third the classical philologist and historian Boeck, succeeded by the historian Leopold von Ranke. The first vice-chancellor was the painter Cornelius, and on his death Professor Dove was appointed to the dignity. Field Marshal von Moltke is a member both of the military and of the civil order *pour le mérite*.

AN epidemic of measles introduced at Levuka, it is believed, by her Majesty's ship *Dido*, when that ship returned from Sydney with the King and his two sons last January, has assumed alarming proportions.

A CHARITABLE WISH.—Dr. Grabham, in a lately published pamphlet on the 'Origin, Varieties and Terminations of Idiocy,' relates that one of his lady correspondents, the mother of a patient, writes to him that 'Her late husband used to say that there was no such place as hell, but she hopes now he has found out his mistake.'

ICE IN THE HOUSE.—The use of ice in small quantities frequently repeated is very general in many diseases, but it is generally found to be a difficulty to keep it from melting, especially in small blocks. Dr. Schwarz recommends, to obtain this result, that the ice should be put in a vessel covered with a plate, which vessel should be placed on a feather-bed and covered with a feather-pillow or cushion, feathers being very bad conductors of heat. Dr. Schwarz states that by this plan he has been able to keep six pounds of ice for eight days when the thermometer marked summer heat.

THE MILD GORILLA.—The Marquis de Compiègne, one of the most enterprising French explorers of the Ogoone, in a letter to the *Explorateur*, confirms the statement of the late Winwood Reade as to the mild nature of the gorilla. Both travellers describe this animal as even of a timorous nature, flying from man to a much greater extent than he is shunned by the human race in those regions. The marquis was never able to get near enough to these animals to kill one, although he once saw two of them; they were perched on the top of a tree, and disappeared with amazing rapidity when they caught sight of the white man. He relates that one of his hunters found himself one day literally face to face with three gorillas; his gun missed fire, when man and animals ran away as fast as they could in opposite directions, the one as terrified as the other. M. de Compiègne confidently states that the gorilla is in no sense an intermediate link between man and animals, but a simple ape; a gigantic ape, it is true, of colossal strength and size; but in no way differing in its ways and habits from the other large anthropoid apes, as for instance, the chimpanzee.

ERRATUM.

The paragraph, line 37, p. 349, of the LONDON MEDICAL RECORD, in the article 'Dr. Hughlings Jackson on Nervous Dissolution as illustrated by Epileptic Mania,' commencing 'In a case,' and ending 'as many physicians suppose,' was inserted in error and belongs to a paper on another subject.

NOTICE.

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The London Medical Record.

WEDNESDAY, JUNE 23, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

VULPIAN'S EXPERIMENTAL PATHOLOGICAL STUDIES ON THE PHYSIOLOGICAL ACTION OF TOXIC AND MEDICINAL SUBSTANCES.

(Continued from page 367.)

M. Keuchel, in some experiments made under the direction of M. Bidder, has discovered an interesting fact worthy of recapitulation. It is, that the sulphate of atropia abolishes the action exercised by the chorda tympani on the submaxillary gland; so that on a curarised dog, submitted to artificial respiration and also poisoned by a slight dose of sulphate of atropia, faradisation of the lingual nerve, united to the chorda tympani, does not bring on the slightest flow of saliva from Wharton's duct.

M. Heidenhain has established the existence of another remarkable peculiarity in repeating this experiment. It is that the faradisation of the chorda tympani, which no longer provokes the slightest submaxillary sialorrhoea, exercises the same action over the vessels of the gland as in the normal condition. The vessels of that gland become dilated; the circulation in them becomes more active; in a word, all the circulatory modifications which faradisation of the chorda tympani produces in the submaxillary gland, as M. Claude Bernard has discovered, show themselves as in a dog not poisoned by atropine. Finally, M. Heidenhain has made still another important remark. After having recognised that the chorda tympani has no longer any action on the secretion of the salivary gland in a curarised and atropinised dog, he submitted the upper extremity of the cervical cord of the great sympathetic to faradisation, and he has seen that the excitation of this cord further determines the flow of saliva, as in an animal simply curarised. It may be concluded, in agreement with M. Heidenhain, that if the atropia destroys the action, which in the normal state the chorda tympani exercises over the submaxillary gland, it is by modifying in a certain way the peripheric extremities of the glandular fibre of this branch of nerve, but not by annulling in a more or less permanent manner the secreting faculty of the cells which line the interior of the *culs-de-sac* of the submaxillary gland. Otherwise, faradisation of the sympathetic filaments which go to the gland should no longer, in an atropinised animal, produce any increase of the salivary secretion. It will, on the contrary, be understood, that the mode of termination of the nervous filaments springing from the sympathetic may be different from that of the fibres which take their rise in the chorda tympani, and that consequently atropia exercises a different action on the terminal extremities of these two sorts of fibres. These conclusions of M. Heidenhain are the starting-point, the basis, of the argu-

ment which opposes itself to the admission that the sialagogue influence of jaborandi is due to an action of that substance on the cells of the submaxillary gland. One or two centigrammes of sulphate of atropia are injected into the subcutaneous cellular tissue, in a dog curarised and submitted to artificial respiration. When the effects of the atropinisation are visible, that is to say, when the pupils are extremely dilated, thirty or forty grammes of water, in which two or three grammes of pulverised jaborandi leaves have been infused, are injected into one of the crural veins. A cannula destined for the flow of the submaxillary saliva is first fixed in Wharton's duct, and, as MM. Carville and Rochefontaine have shown, there is not the issue of a single drop of saliva by the cannula.

However, as already said, the sulphate of atropia appears to have left intact the functional aptitude of the cells appertaining to the submaxillary gland. If, then, the infusion of jaborandi does not exercise a greater sialagogue action, it is because the active principle of this substance does not directly excite the gland-cells, and only provokes an increased secretory work by the medium of the fibres of the chorda tympani. By the help of curare an effect analogous to that brought on by atropine is induced. But to attain that result it is necessary to submit the animal (a dog) to the action of a large quantity of curare. A dog is curarised, and to obtain the effect desired more quickly, a filtered solution of curare, in sufficiently large quantity to annihilate the action of the great sympathetic, is injected into a femoral vein. This degree of curarisation obtained, an infusion of three or four grammes of jaborandi leaves is injected into the same vein of the animal. The injection of jaborandi remains inactive. However, the curare only really acts, in these conditions, on the ends of the glandular nerves, and not on the cells appertaining to the submaxillary gland, of which the functional properties should remain intact. At least, it seems to M. Vulpian that he has a right to reason thus, basing his opinion on what takes place in the nerves and striated muscles under the influence of smaller doses of curare. Consequently, it may still be legitimately concluded from this kind of experiment that the sialagogue action of jaborandi is not owing to an excitation produced by it in the cells belonging to the gland itself. It must thence be admitted that jaborandi acts on the submaxillary salivary glands through the medium of their nervous apparatus; but it remains to be discovered in what manner it acts upon this nervous system. It evidently does not act by paralysing the chorda tympani; for it is known that the paralysis of this nervous branch, such as is produced, for instance, by dividing the lingual nerve above the point whence the glandular filament detaches itself, does not bring on the least increase of the secretion of the submaxillary gland. On the other hand, it might be presumed that the effect of the absorption of the principle of jaborandi is not due to an excitation of the glandular nerve-fibres springing from the great sympathetic, for these fibres retain their action on the secretory work of the submaxillary gland in the atropinised animals; and if the jaborandi acted on the secretion of this gland by exciting these fibres, it should provoke sialorrhoea in animals submitted to atropia, as well as in those which have not undergone that influence. It has already been said that jaborandi does not produce the least sialagogue effect on an atropinised dog; therefore

it is not by exciting the sympathetic fibres leading to the submaxillary gland that jaborandi brings on the flow of saliva provoked by it in a healthy or merely curarised animal. There only remain two possible hypotheses to explain the action of jaborandi on the submaxillary glands. Jaborandi can only produce its sialagogue effect by exciting the peripheral ends of the chorda tympani, or by paralysing the sympathetic fibres leading to that gland. Now, by establishing the fact that atropia would appear to act by paralysing the chorda tympani, and that the sialagogue influence of jaborandi ceases in an atropinised animal, the first of these hypotheses seems to be the one to be adopted; that is to say, to suppose that ptyalism provoked by jaborandi in a healthy or merely curarised animal is due to the excitement of the peripheral extremities of the chorda tympani. Ought this interpretation to be considered as the sole available one? It will be seen immediately whether the sialagogue effect of jaborandi cannot be explained in any other way; but to clearly demonstrate M. Vulpian's opinion on this question, he first examines the mechanism of the action of jaborandi on the sudoriparous glands. He states that the nerves of the sudoriparous glands are but imperfectly known. The only indication given on this subject is due to M. Langerhans, who has seen nerve fibrillæ destitute of myeline penetrate into the sudoriparous glands, and even into the spaces between the cells of those glands. It is necessary, however, to wait for confirmatory researches before pronouncing on the exactness of these data. But whether the relations of the nervous system with the sudoriparous glands be such as described by M. Langerhans, or whether they take place in another manner, their existence is a matter of certainty, otherwise it would be impossible to understand the mechanism of the modifications of the sudoral secretion, which are produced under the influence of the variations of the external medium. Neither would it be possible to account for the action exercised by certain affections of the nervous system on the function of the sudoriparous glands. We know that the secretion of sweat increases when the external temperature rises; this is one of the physiological processes which serve as thermic regulators. Evaporation of a larger quantity of liquid from the surface of the skin takes place, and consequently a borrowing of a larger quantity of heat from the cutaneous tegument. The losses of caloric which ensue as a consequence of that evaporation therefore increase under these conditions, and this is one of the means by the aid of which the organism of man maintains its own temperature at an almost fixed degree, even in an atmospheric medium hotter than itself. This superactivity of the sudoral secretion, which shows itself speedily when the surrounding temperature rises, can only be explained by its being considered as the result of a reflex secretory action, provoked by the impression made on the skin by the heat of the external medium. This impression is conveyed by the centripetal nerves to the ganglionic and cerebro-spinal centres; it there gives birth to an act of reflectivity, to an excitation transmitted by the centrifugal nerves to the sudoriparous glands. It is a matter of necessity that these nerves should enter into relation with the special elements of the cutaneous gland, for such a secretory superactivity of these elements to be able to produce itself so rapidly under the influence of an impression made on the skin.

M. Vulpian recalls to our recollection that M.

Brown-Séguard some time since (July 21, 1869) communicated to the Société de Biologie the observation he had made of perspiration of the face, almost instantaneously produced by lively impressions affecting the nerves of taste.

Well-known experiments likewise show in the clearest way the influence of the nervous system on the sudoriparous glands, as in the experiments of M. Duplay of Alfort. This physiologist, after the extirpation of the guttural ganglia, that is to say, the superior cervical ganglia in horses, discovered that the nape and many parts of the head became covered with profuse sweat.

M. Claude Bernard has confirmed these results, and has seen them produced after the section of the cervical cord in the middle of the neck in solipeds, and he has discovered the fact that the hyperæmia thus induced may be arrested by electrifying the upper extremity of the divided cervical cord. In addition to these facts, M. Vulpian quotes those which have been observed in man by M. Meyer. This physician has seen, under the influence of an electric current, the negative electrode being in contact with the region of one of the superior cervical ganglia, and the positive electrode with the transverse apophysis of the opposite side of the seventh cervical vertebra, a profuse perspiration show itself on the arms, the hand, and finger, on the side of the cervical ganglion excited. Pathology furnishes arguments which also demonstrate the existence of intimate physiological relations between the nervous system and the sudoriparous glands. In a case observed by Dr. Gairdner, of Edinburgh, in which there was aneurism of the aorta and of the brachiocephalic trunk, a contraction of the right pupil was discovered; the right side of the face was often covered with cold perspiration, whilst in the intervals, on the contrary, the face was the seat of a considerable amount of heat. Professor Verneuil, having to remove a tumour of the parotid, placed a temporary ligature on the carotid. After the operation, he noticed congestion of the temple and gums on the side operated on, and at the same time he observed an increase of perspiration over the whole corresponding side of the face. Dr. W. Ogle has recorded a case in which a cicatrix on the right side of the neck was co-existent with a contraction of the pupil on that side, and with a higher temperature and a greater redness of the ear and neck of the same side. After any exercise, such as a quick walk, the left side of the face only was covered with perspiration. This last case is specially interesting, as it shows that, after paralysis of one of the cervical cords of the great sympathetic, the excitations proceeding from the nerve-centres no longer have any action on the sudoriparous glands of the corresponding side of the face. Cases of localised sweat in the face in cases of fracture or alterations of the cervical vertebrae might also be cited. Perspirations have likewise been seen to occur habitually on one side of the body. Cases of this kind of unilateral hyperidrosis have been collected by M. Auguste Ollivier and M. Nitzelnadel, who have also personally observed a certain number of such cases. In a subject who showed the sweats on one side, the right, only on the arm, in the arm-pit, on some portions of the right foot, with a higher temperature than in the homologous regions of the other side of the body, M. Chvostek, after MM. Eulenburg and Guttmann, from whose work M. Vulpian has borrowed the majority of the preceding indications, has established

that galvanisation of the cervical cord of the great sympathetic of the right side caused an increase of the sweat and of the vascular dilatation of that side. In a recent case of this kind, reported in Virchow's *Archiv* by Herr W. Ebstein, and in which a careful necropsy was made, this surgeon found varicose dilatations of the capillaries in the cervical ganglia of the corresponding side, principally in the inferior ganglion. M. Vulpian does not think much importance is to be attributed to this lesion with regard to unilateral epiphrosis; for, as he has mentioned in a memoir published in 1868 in the *Archives de Physiologie*, he has often found ampullary dilatations in the cervical ganglia in women who had not shown the least symptom of this kind. These clinical facts are not, however, the only ones which show the influence of the nervous system on the production of sweat. In cases of hemiplegia and paraplegia, the paralysed limbs have been seen to be covered with sweat, whilst the other limbs remained dry. In the same way intercostal neuralgia, and those of the trigeminal and the sciatic nerve may bring on a diaphoresis localised in the parts to which the nerve, in whose path the pains show themselves, are distributed.

Still further to prove the influence of the nervous system on the sudoral secretion, M. Vulpian finally cites the cases of perspiration of intermittent fevers, those of phthisis, convalescence from acute disorders, the death-agony, etc. The entirety of all these facts tends to show that the superactivity of the function of the sudoriparous glands, in the majority of cases, is a result of weakening or paralysis of the nerves through the medium of which these glands enter into relation with the nerve-centres.

Experiment shows us that it is paralysis of the fibres of the sympathetic which induces the increase of the sudoral secretion, or, at least, this is the course of events with regard to the face. May it not be admitted that it is the same in other regions of the body, and that everywhere it is the great sympathetic which innervates the sudoriparous glands? No physiological or clinical fact proves the existence of excito-secretory nerve-fibres proceeding to those glands. These small organs only seem to receive nerve-fibres exercising a moderating influence over their secretory operations.

(To be continued.)

PAGET ON GOUT IN SOME OF ITS SURGICAL RELATIONS.

In a course of four clinical lectures published (in abstract) in the *British Medical Journal* for May 15, 22, 29, and June 5, Sir James Paget, after observing that gout is rather found in its typical forms in private than consulting practice, stated that in the latter it has been more carefully studied. There is a large number of comparatively trivial diseases, which belong to the gouty constitution, and which commonly pass under the name of incomplete, anomalous, or suppressed gout. Also gout affects the consequences of injuries and diseases other than itself. It is very rare for the offspring of well marked gouty parentage to pass the middle or elder periods of life without manifesting some degree of the gouty constitution. Gout, too, is greatly modified when it is mingled with other constitutions—with the scrofulous, the tuberculous, the cancerous, or any other. One of the commonest methods of developing manifestations of the presence of gouty

tendencies is an injury. A person with a gouty constitution has a fall or other injury, and in a few days there comes a fit of gout. In such cases there has been a condition so justly balanced that, so long as the right nutrition of the several textures is not interfered with they hold their usual course, but that when anything occurs to interrupt the process of nutrition, which makes the various textures feebler, or which tends to bring out any degeneracy, then comes out the special form of disease; for what happens with the gouty occurs also with most other constitutional conditions. As a blow on the breast elicits cancer, so an injury of any kind may bring out gout. If a person with gout about him strike his foot, the gout will appear there; if he wrench his wrist, the attack will come in his wrist. Still more is this likely to occur in rheumatic gout than pure gout. Blows to the hip-joint in such persons are very liable to produce gouty arthritis of that joint. Arnica used externally is apt to produce an erysipelatous condition of the skin in the gouty. Gout, too, modifies many common inflammatory processes, as, for instance, gouty bronchitis, gouty periostitis; and it is of importance to be able to recognise the gouty characteristics in such inflammations. Such gouty tendencies have a tendency to paroxysmal manifestations. The remote consequences of gout after injuries deserve to be carefully noticed. Such persons as are gouty recover more slowly and less perfectly from injuries than others; and in cases where injured parts remain painful, or there is abiding stiffness, gout should be suspected, especially in persons of advanced life.

Gout is sometimes mingled with scrofula. Such is the case in children one of whose parents was markedly gouty, the other markedly scrofulous; and in such patients inflammation which commences as gout may drift into true scrofulous inflammation. Such cases are very important, and the altering features of the case should be carefully noted and the treatment modified accordingly. Instead of passive movement and shampooing, splints and rest become indicated. Even older persons than children may present such changes. A case occurred lately, in which a person who had long been gouty, and whose tissues were degenerate, was at length attacked with scrofula which he had escaped in early life. Blended gout and scrofula form a very bad inheritance. Gout, too, exercises an influence upon gonorrhœa and the progress of syphilis. Gouty persons with gonorrhœa are liable to attacks of inflammation in the joints or the sclerotic. Gout mingles, too, with syphilis, especially in its secondary and tertiary manifestations.

Syphilis in a person with blended scrofula and gout will produce a very different series of events from those which the same poison will produce in a perfectly healthy person. Such modifications have been too little studied in connection with syphilis. It might, for instance, be doubted whether syphilis ever produced destructive ulceration of the nose, except in those who were either tuberculous or scrofulous. Again, that form of chronic synovitis that was associated with tertiary syphilis was generally seen only in the gouty. Mercury must be cautiously administered in cases of mixed syphilis and scrofula. For syphilis mixed with gout, iodide of potassium with alkaline waters form the best line of treatment. Cancer in the gouty is unusually painful, and potash often relieves the pains very effectually.

The minor signs of gout in the hands and feet were next considered. It will not do to build a diagnosis of gout upon any one of these minor ailments alone; the diagnosis must rest upon a number of the smaller features of the case carefully collected and fitted together. If many be found together, or in quick sequence, the diagnosis is almost as certain as if well-marked gouty inflammation of the great toe were found. A very large proportion of the first attacks of complete gout occur in the toe or foot. Less complete forms are common, as darting pains in the toes or knuckles after errors in diet. Still more suggestive is it if the pains be in the heel or tendo Achillis. In the examination of elderly persons, it is quite as necessary to examine their knuckles as their tongue. Gouty hands often look as if they were shortened, especially in the fingers. There are the true globular, rounded, and hot gouty joints, and also the flattened form of more chronic changes. The palmar fascia is very apt to become affected. A number of old people are seen with their fingers drawn down to the palm, and especially their little finger. If they live long enough, all the fingers may become so affected, the index finger being least so. Any man who is in the habit of grasping tools tightly is liable to such change in the palmar fascia. Men engaged in lock and key making, wire-drawing, etc., are very subject to this condition. Gardeners, and persons who use walking sticks much, and more so if the sticks be badly shaped, are similarly affected. Such thickenings must not be confounded with the scars of old abscesses or injuries. In gouty cases, the integuments adhere firmly to the palmar fascia. Similar affections may occur in the foot, and often are very troublesome, requiring the boots to be frequently changed.

For the treatment of affections of the fingers and toes, gentle compression, aided by wet linen and oiled silk, is good, and may be continued for the relief of the resultant thickening in the form of a firm bandage. In contraction of the palmar fascia, stretching the hand out on the table several times a day is good.

When the fingers are drawn down little can be done, and section of the tendons, if giving temporary relief, is apt to produce greater contraction ere long. Operative treatment will generally lead to a worse state of things than existed ere it was resorted to.

Gout is very liable to affect the nervous system, the sensory rather than the motor nerves, however. It produces intense pain oftener than cramp. This is shown in the intense painfulness of an ordinary gouty attack, a painfulness out of all proportion to the other phenomena of the inflammatory attack, and especially disproportionate to the structural changes in the part attacked. Neuralgiæ, as sciatica and brachial neuralgia, are very common in gouty persons. Various shifting neuralgia in a person of or over middle age should always excite a suspicion of gout. Gouty neuralgiæ are more fitful, more quickly and readily affected by indigestion, errors of diet, and other similar influences, than other neuralgiæ. Then there are some morbid sensations of the skin, even more suggestive of gout. Such are (1) burnings in portions of the skin—hot burning patches in the thighs, or other parts, as the palms or soles; these sensations, however, are not limited to any particular localities of the skin. The affected portions of skin look healthy, or only slightly flushed: and though the patient complains much of the pain, as burning or scalding, no organic changes

appear to ensue. (2) Numbness or tingling of a limb, or of any portion of one—the feeling as if the part were asleep—are also gouty indications, and they may exist for months or years. Such feelings cause great distress in nervous persons, who are afraid that they foretell paralysis or other serious trouble. Paralysis, of course, may be so preceded; the fears in the majority of cases, however, are groundless. Gout should be carefully looked for if these sensations be of long duration in persons whose nutrition is good, and if there be no change of temperature or wasting.

In the hypochondriacal and the hysterical gout may supply morbid sensations, to which the mental state is only too ready to give colour and intensity. The pain itself is real, but these patients aggravate it by errors both of observation and judgment; of observation, because they study it with a morbidly close attention; of judgment, because they assign wrong causes for its presence. Probably there is no special connection betwixt gout and hypochondriasis, but they mutually aggravate each other and cause much misery which it is often difficult to cure, or, indeed, even to relieve.

Cramps and sudden 'catches' in overaction are also found in connection with gout; and in some persons they are, at certain times, almost sure to follow any sustained or awkward movement.

The relations of gout to the urinary organs may be traced in its relations to the lithic acid diathesis. Among elderly persons, a large proportion of cases of lithic acid calculi, and lithic acid gravel, are in those who bear marks of gout, a fact which justifies the assumption that gouty attacks are intimately connected with, if not possibly due to, an imperfect elimination of lithic acid by the kidneys. The appearance of lithic acid or of lithates in the urine is suggestive of gout. Acute inflammation of the mucous membrane of the bladder, with pain and distress, chiefly before micturition, extending to the perinæum, rectum, and suprapubic region, and with burning sensations in the urethra, is associated with gout. With these general signs there are more special ones, as the nocturnal occurrence, or dyspepsia, the suddenness of the attack, its sudden subsidence, its relapse, or its metastatic character. Gouty orchitis is not uncommon, and is frequently followed by the presence of fluid in the cavity of the tunica vaginalis. It is prone to relapse; it passes from one testis to the other, and also comes on suddenly. Gout affects the course of urethritis; and in gleet in the gouty, relapses are apt to follow errors in diet or in drinking. True gouty urethritis is found where there has been no infection, and is itself free from infectiousness. Prostatic disease or enlargement is very frequent in the gouty; so, also, are alterations in the penis. There are fibrous thickening and hardening of the corpus cavernosum, and the changes are similar to those of the palmar fascia described above. The affection is chronic, but harmless. Painful and persistent erections at night are also found most commonly in the gouty, especially in the incomplete forms and with excess of lithates. Bromide of potassium or ammonium is here very useful.

Gout, too, affects the skin, in the form of psoriasis, eczema, urticaria, prurigo, pruritus, etc. The relation is not to be found in any anatomical features, or in any peculiarity of appearance. In such cases the patient's constitution is more important than the anatomical characters of the local disease. For example, if eczema be found in a patient who has had regular

gout, there must be a strong suspicion that the eruption depends upon gout, and the case must be treated in this view. Such treatment is as much called for here as in the case of inflammation of a joint in one known to be gouty. The sudden appearance, especially at night, the connection with indigestion or unusual diet, point to the origin. The old rule that such patients should have nothing salt, strong, sweet, or sour, is a good one. The classification of skin-diseases, grown so minute of late, founded mainly on an anatomical basis, leaves out too much the constitutional conditions with which the disease is associated, which is of paramount importance. Ulcers, too, are common in the gouty, especially the eczematous ulcer about the ankle. This is an eczema of which some portion is the seat of thin shallow ulceration. There is much severe pain, especially on lying down and in bed. In the warmth and quietude of bed the pain becomes agonising. Such ulcers are commonly associated with varicose veins; not the large tortuous veins, but small clusters of veins, often of bright hue, collected round the ankle or some portion of the leg. Some think the varicose veins the cause of the ulcer, but this view is a fallacy. Incomplete gout is the cause, and the presence of varicose veins is only a coincidence.

Gouty affections of the digestive organs were next referred to. Many persons can foretell the oncoming of gout by the appearance of their tongue. Psoriasis of the tongue is also a gouty affection. It is difficult to distinguish this affection from syphilitic psoriasis, and the diagnosis rests on the general environment. There is thin opaque white covering over the mucous membrane, like the layer of mucus left by the snail when tracking its way over wood. Diseases of the palate and pharynx are also among the list of gouty affections; and elongated uvula in elderly persons is very suggestive. The gouty dyspeptic is troubled with acidity and flatulence, is easily disturbed by errors of diet, and has 'bilious' headache. Often the dyspepsia so induced is accompanied by burning in the knuckles, or in the palms and soles, or by some neuralgia in the scalp. The ready disturbance caused by certain articles of diet in those persons forms a capital diagnostic indication. Gout affects the circulation, and surgically is most seen in gouty phlebitis. It is, perhaps, one of the most frequent of the forms of irregular gout.

Gout indeed, Sir James Paget remarked, mixes itself with whatever malady is present in the patient. Of course the treatment of a gouty man is different according as it is blended with scrofula, or syphilis, or occurs in the nervous or the healthy. Colchicum often is useful. There are three things that have to be considered for all gouty persons. Firstly, they should drink an extra quantity of water, especially in the early morning, before any food is taken. Secondly, those who have lithic acid or lithates in excess, should take alkaline instead of pure water. Many waters, as Carlsbad and Vichy, are very useful; and those that are purgative as well as alkaline may be employed when the bowels are confined. Often the skin needs good washings with soap, and thorough rubbing as well as mere warm baths. It is a good plan to adopt the German practice of going to bed for awhile after the bath. If English baths were worked with the same care in this respect as is the case abroad, more good would result from them. In conclusion, he said that 'what was in his mind was chiefly this; first, the

broad general rule, that disease is not to be studied as if it could be learned by morbid anatomy alone; and next, that amidst the forms of constitution to be studied in surgery, the gouty is an important one, and that it has not only complete and typical forms but also minor characters, which, if occurring in any number in the same person or in different members of the same family, might be as sure evidence of gout as the most typical inflammation of hand or toe, and that the gouty element is important in the matter of treatment.' J. MILNER FOTHERGILL, M.D.

ANATOMY AND PHYSIOLOGY.

SIEDAMGOVTZKY ON THE THERMOMETRY OF DOMESTIC ANIMALS.—Professor Siedamgovtzky gives the following results of his observations in the *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie*.

1. *Horse*.—The medium temperature of 100 horses was 38° Cent.; the highest reached was 38° 2 Cent. The average was taken of readings in the morning, at midday, and in the evening. Krabbe found the medium temperature to be 38° 1 Cent.; Peters, 37° 5 to 38° 2; Fleming, 38° 75; Davy, 37° 5; Sonnenberg, 37° 38; Prevost and Dumas, 36° 8 Cent. *Influence of Age*.—In a young foal, five days old, the temperature was 39° 3. The average temperature of horses from two to five years was 38° 1 Cent.; from five to ten years, 38°; from ten to fifteen years, 38° 2; from twenty years and upwards, 37° 9 to 36° 9 Cent. *Influence of Sex*.—The mean temperature of stallions was 37° 8; of mares, 38° 2; of geldings, 38° 05. *Influence of Time of Day*.—The maximum was found at 6 P.M., 38° 2 Cent.; the minimum at 4 A.M., 37° 5 Cent. *Influence of Feeding*.—A rise occurred from three to five hours after feeding of from 0° 2 to 0° 8 Cent. *Influence of Drinking*.—Water of a temperature of from 8° to 12° Cent. lowered the temperature from 0° 3 to 0° 5 Cent. Thus feeding and drinking have opposite effects. *Influence of Exercise*.—Exercise raised the temperature, but in different degrees in different animals. *Influence of External Temperature*.—Horses placed in a stall at a temperature of 25° Cent., showed a temperature four hours afterwards of from 31° to 43° Cent. There was a rise of the normal of from 0° 4 to 1° 2 Cent. A draught of air produced a fall of 1° Cent. Great cold in winter, when the air had a temperature near freezing-point, produced a rapid refrigeration of the skin, but showed a rise of 1° 2 Cent. above the normal in the rectum. This occurred while the temperature of the stall was 10° Cent., but after the animal was a short time in the open air there was a reduction below the normal of 0° 5 Cent. *Influence of Bleeding*.—The temperature was reduced 0° 1 Cent. by bleeding to the extent of from 5 to 6 lbs.

2. *Cattle*.—A nine-year old cow gave 38° 9 Cent. (Krabbe found in the cow 38° 8; Davy, 38° 9). The daily fluctuation was small as compared with the horse: the minimum was, at 12, midnight, 38° 7; the maximum at 5 P.M., 39° 1. The effect of food was not noted.

3. *Sheep*.—284 measurements in the rectum of a one-year-old wether gave from 38° 5 to 41° 8—a mean of 40° 2 Cent. (Fleming found 40° 25; Krabbe, 39° 8.) The variation found in successive readings is much greater than in the horse or in cattle. Un-

shorn sheep (157 readings) showed a mean temperature of $40^{\circ}56'$ Cent.; while shorn animals (from three to twenty-four days after shearing, ninety-four measurements) gave $39^{\circ}73'$ Cent.

4. *Swine*.—169 readings taken from four swine gave $38^{\circ}5'$ to $40^{\circ}8'$ Cent., or a mean of $39^{\circ}6'$ Cent. (Krabbe found $39^{\circ}1'$; Flemming, $40^{\circ}5'$; Gurlt, 40° to $41^{\circ}2'$ Cent.)

5. *Dogs*.—190 readings in seventeen dogs gave $38^{\circ}3'$ Cent. (Flemming gives $38^{\circ}5'$; Krabbe, $38^{\circ}7'$ Cent.)
J. G. MCKENDRICK, M.D.

TAYLOR ON PULSATION IN THE VEINS.—In an article in the *Guy's Hospital Reports*, Dr. Frederick Taylor speaks as follows. Pulsation of the jugular veins has long been recognised as of frequent occurrence in the more advanced stages of cardiac disease, but its importance in diagnosis is differently estimated by authors. While some, as Niemeyer, regard a pulsation synchronous with the heart's beat as a pathognomonic sign of regurgitation through the tricuspid orifice, others, as Walshe and Friedreich, are of opinion that a true venous pulse may arise in cases where the tricuspid valve is functionally perfect. All, however, agree that it is in cases of tricuspid regurgitation that the jugular venous pulse is most distinct and most forcible, being easily perceptible to both sight and touch.

The mechanism of the pulsation in such cases is not difficult of comprehension, when the accompanying conditions are taken into consideration. The beginning of the trouble is frequently disease of the mitral valve, in the form of obstruction or regurgitation, or of both together; the interference in the circulation at this point leading to increased tension in the area of distribution of the pulmonary artery, and hence to over-distension, dilatation, and hypertrophy of the right ventricle. The tricuspid valve, then, may become incompetent in two ways; on the one hand, endocarditis affecting it may cause rounding or thickening of its free edges, shrinking of its substance, or adhesion of the cusps to one another, so that the valve is not extensive enough to cover the area of the auriculo-ventricular orifice; on the other hand, dilatation of the right ventricle may involve the valvular orifice to such an extent as to render it impossible for a valve of normal size to close it effectually. Niemeyer believes this is a rare case of incompetence, because, as he says, when the ostium dilates, the valves grow in breadth and length; but at any rate such a dilatation must add very much to the functional derangement produced by endocarditis.

As the valvular apparatus of the heart becomes more and more imperfect, the portions of the circulatory system next behind the tricuspid orifice become in their turn over-distended, and permanently dilated; these are, first, the right auricle, and, secondly, the great veins of the thorax and neck. With increasing distension of the jugular veins the valves at the root of the neck, if at first acting efficiently, will in course of time be rendered useless, and then all the conditions necessary for pulsation of the cervical veins are present. With each contraction of the over-filled right ventricle, blood is driven through the tricuspid orifice, and a movement communicated to that in the right auricle and vena cava; did the large veins contain only a moderate amount of blood, the force of the ventricular contraction might be lost in further distending them, but in their overfilled condition the movement is communicated

through the valves at the root of the neck to the column of the blood in the jugular vein, and a pulsation synchronous with the cardiac impulse is the result.

But the jugulars are not the only veins in which pulsation has been observed: Seidel and Geigel have described cases of tricuspid incompetency in which the inferior vena cava was seen to pulsate, and A. Burns, Senac, and Kreysig long ago showed that epigastric pulsation might be due to regurgitation of blood through the right auricle into the inferior vena cava and hepatic vein.

GRUBER ON THE OS FONTICULI FRONTALIS.—In the current number of Virchow's *Archiv* (Band iii, Ser. 6) appears a note by Professor Gruber, of St. Petersburg, supplementary to a most elaborate paper upon the same subject contributed by him about a year ago to the *Mémoires* of the Academy of Sciences of the above university; of which essay there is a much condensed abstract in the LONDON MEDICAL RECORD of January 6 of the present year. Out of 500 human skulls in course of maceration during the years 1873-4, six crania having the peculiarity in question came under the notice of the professor. In three instances the intercalary ossicle lay between the parietal bones and behind the frontal bone; in another instance it slightly encroached upon the frontal; in yet another case it lay equally between the parietal bones and in the frontal; while in the last instance (*loc. cit.* fig. 2, plate I.) the bone was lodged, as an 'os interfrontale,' in an elongated notch in the median line of the os frontis, quite in advance of the parietals, its hinder angle being immediately in front of the extremity of the sagittal suture.

[From the figures recorded in Professor Gruber's first paper, it would appear that the abnormality in question occurs in man once in 250 skulls. If, however, the figures given in the more recent record be added to these, the percentage of occurrence of the intrusive ossicle would seem to be increased—viz., once in 210 crania.—*Rep.*]
J. C. GALTON.

RECENT PAPERS.

- Observations of the Development and Structure of the Kidney. By Walter Pye. (*The Journal of Anatomy and Physiology* for May, 1875.)
- On the Mechanical Work of Respiration. By Mr. B. T. Lowne. (*Ibid.*)
- Note on the Construction and Arrangement of Anatomical Museums. By Professor Flower. (*Ibid.*)
- Lopsided Generations. By Dr. Hollis. (*Ibid.*)
- Notes on the Great Splanchnic Ganglion. By Mr. J. D. Cunningham. (*Ibid.*)
- On the Excito-Motor Action of Quinine on the Muscular Fibres of Organic Life. By Dr. Angelo Monteverdi. (*Annales de l'Académie de Médecine de Gand*, May, 1875.)
- On the Physical Cause of the Presystolic Murmur. By Dr. Alexander Harvey. (*Lancet*, June 12.)

MEDICINE.

MAYER ON THE SYMPTOMS AND TREATMENT OF DIABETES MELLITUS.—Dr. Jacques Mayer of Carlsbad contributes two articles on this subject to the *Berliner Klinische Wochenschrift*, of May 24 and 31, 1875 (nos. 21 and 22), in which he combats the notion that there is any causal interdependence between the great thirst (polydipsia) the increased quantity of urine (polyuria) and the amount of sugar present in

the blood of diabetic patients, so far as his own clinical experience, amounting now to seventy-four cases, extends. He candidly admits the great difficulties which attend the determination of this question, and quotes two cases in illustration of the varieties met with in cases of diabetes mellitus. The first case, a Berlin merchant, aged thirty-six, had been singularly free from any previous diseases, even from those of childhood. He was married, and of late had more than usual, though not immoderate, mental exertion. Simultaneously he noticed that he was losing his previous corpulency. Then he felt great fatigue after slight exertions, great thirst, and frequent calls to pass urine. His medical man examined the urine, and found it to contain 0.5 per cent. of sugar. There was no history of diabetes, neuroses, insanity, or furuncular affections in his family. He was placed on a very restricted diet, and after being under observation four weeks, was sent to Carlsbad. There it was noticed that his pulse was 72°, the heart slightly enlarged, the liver, spleen, and lungs apparently normal. His thirst was extreme; even in the night he drank enormously of water; his appetite was deficient. The urine, in twenty-four hours, amounted to 3,800 cubic centimetres (about 133 ounces), with a percentage of sugar of 0.3 or about 11.4 grammes = 3iij nearly of sugar in the twenty-four hours. The specific gravity of the urine was 1.024. The restricted diet was continued, and moderate quantities of the Carlsbad waters ordered. At the end of May his thirst had almost left him, his appetite was good. He was stronger, had gained five pounds in weight, and was free from fatigue. The sugar in his urine had disappeared; the specific gravity of the urine was now 1.022; its quantity in twenty-four hours was 1,900 cubic centimetres (about sixty-six ounces).

The second case, also a married merchant, living in Berlin, aged thirty-three years, had from early youth been a hard worker, but lived well, or rather freely, for from the age of fifteen he had been a votary of both Bacchus and Venus. He had shared the campaigns of 1864, 1866, 1870 and 1871 with some hardships and exposure, which induced rheumatic pains. Sometimes he suffered from vertigo and epistaxis. He had suffered from some acute disease, apparently not infectious. After his first campaign he became very stout. In 1871 he weighed 210 pounds; he once had a large boil near the anus, which was opened. From the nature of his business he drank a great deal of wine, brandy and beer. His father died at seventy-three from catarrh of the bladder. His mother, aged seventy-four, is still alive. He has nine sisters alive, all healthy. None of the family have had diabetes, neuroses, nor insanity. For about three months he had noticed, but not regarded much, a gradual loss of flesh. Frequent calls to pass urine, and immoderate appetite, led his medical man (Dr. Gumbinner) to test the urine for sugar. He found it to contain 6.5 per cent. of sugar. Its specific gravity was 1.035. He was sent to Carlsbad and arrived there on May 20. He was still corpulent; his heart and lungs were normal; pulse, 90°; the liver and spleen were slightly enlarged. Thirst was only very moderate. Sight slightly impaired. Bodily strength good. He asserted that his virile powers were beyond the average. The urine in twenty-four hours amounted to 2,950 centimetres (about 103 ounces). Sugar 11.9 per cent. = 176.5 grammes (six ounces nearly) in the twenty-four hours. Sp. gr. = 1.0365. His appetite was enormous—he would often eat raw meat by the pound!

After using Carlsbad waters with partially restricted diet, he greatly improved, and by June 10 the sugar had all vanished. The quantity of urine passed became normal, and he soon afterwards returned to Berlin. In November the urine was still free from sugar. In February, 1875, the urine was again examined for sugar with a negative result, though the patient was eating what he liked. He had gained nearly thirty-four pounds in weight.

Comparing these two cases, we find similarity in some external circumstances, and in the mild type of the diabetes in both cases, but a vast difference as regards the thirst and loss of flesh, which were both most marked in the one who had least sugar in the urine. Mayer is therefore inclined to refer the thirst and polyuria to vasomotor disturbances. He quotes a case from Romberg (*Klinische Wahrnehmungen und Beobachtungen*, 1851, p. 8) of a patient in whom a sudden feeling of thirst caused the daily consumption of eight or nine quarts of water. Romberg considers this as a primary neurosis. Pribram (*Prager Vierteljahrsschrift*, 1871, iv. S. 1-31) also considers the thirst in a case of diabetes insipidus as the primary affection. He tried the effect of increasing and diminishing the amount of liquid taken. When the water taken was diminished, the diuresis was correspondingly diminished—and when the water taken was increased, the diuresis was also much increased. But it was very curious to note that the decreased diuresis lasted some days after the restriction was relaxed—even though the patient took more liquid, just as he liked. In the same way the increased diuresis, produced by more fluid being taken than was necessary to quench thirst, remained for some days about the same, though the patient limited the amount of fluid. If we admit the neurotic origin and primary nature of the thirst in a series of cases of diabetes insipidus, there is no reason why we should not admit it in some cases of diabetes mellitus. We know that polydipsia and polyuria often precede the glycosuria by some months. Amongst his seventy-four cases Dr. Mayer has five trustworthy instances of this.

Dr. Blumenthal, of Berlin, has a female patient, aged sixty, who suffered for a whole year from extreme thirst and polyuria; her urine never contained a trace of sugar all that time; latterly sugar in considerable quantity made its appearance in the urine. Quinine given continuously has now nearly cured all three symptoms. Külz quotes three cases of alternating diabetes insipidus and diabetes mellitus in his book (*Beiträge zur Pathologie und Therapie des D. Mellitus*, Bd. i. S. 126). One of these is quoted from Houghton (*Dublin Quarterly Journal*, 1863). Luys and Dumontpallier's case, quoted by Ebstein (*Deutsches Archiv für Klinische Medizin*, Band xi. S. 347) is also noteworthy. The patient, aged thirty-five, had suffered for five years from diabetes mellitus, and was admitted into Trousseau's wards for cough and polyuria. He passed daily six to seven litres (210 to 245 ounces) of urine, of specific gravity 1.001 to 1.007, without either sugar or albumen. He had pulmonary phthisis, and shortly afterwards died. There were great hyperæmia of the walls of the fourth ventricle, and unusual vascularity of all the grey matter connected with the auditory nucleus in the floor of the fourth ventricle.

Mayer concludes that the polydipsia in many cases of diabetes mellitus is quite independent of the per-

centage of sugar in the blood, and must be regarded as a primary affection. He admits, however, that in many cases polyuria precedes and polydipsia follows. Bürger explains this by diminished insensible perspiration (*Deutsches Archiv für Klin. Med.*, Band xi. S. 323). Engelmann, however, objects to Bürger's results, and points out errors in his data. Külz, repeating the experiments on one of Engelmann's patients, confirms Bürger (*Beiträge zur Pathologie und Therapie des Diabetes Mellitus und Insipidus*, Band ii. S. 32). Claude Bernard's well-known experiments render it probable that both symptoms originate in one and the same lesion in many cases. Be the cause what it will, this extreme thirst can often be relieved, either by narcotics or by iodine or creasote, especially when the quantity of sugar is small. Mayer next alludes to the enormously increased tissue-metamorphosis in most cases of diabetes. Pettenkofer and Voit mention a case in which 60.9 grammes (2 ozs. nearly) of urea were passed per diem. In Mayer's first case the solid constituents of the urine (deducting sugar) were over 6 ozs. The large ingestion of water probably aids this. Beneke (*Grundriss der Pathologie des Stoffwechsels*, 1874, p. 112) states that on an average the daily addition of 300 cubic centimètres (about half a pint) of water will increase the elimination of urea by about one gramme (15.44 grains) in twenty-four hours.

The article concludes by a brief analysis of Mayer's seventy-four cases, of which sixty-one were males and thirteen females. The ages were as follows; none under ten years; ten to twenty years, 2 (a lad aged sixteen, no known cause; a girl aged seventeen whose mother died of diabetes); twenty to thirty years, 3, all males; thirty to forty years, 10, eight males and two females; forty to fifty years, 26, twenty-two males and four females; fifty to sixty years, 22, nineteen males and three females; sixty to seventy years, 9, six males and three females; seventy to eighty years, 2, males. Forty-three males and five females, in all forty-eight, suffered from a mild form. The type was severe in twenty-six (eighteen males and eight females). The etiology was often obscure. In eight cases a residence in malarial districts seemed the only feasible explanation. In fourteen cases there was hereditary predisposition, thus confirming Schmitz as to the frequency of this. In nine severe cases the use of Carlsbad waters and residence in Carlsbad proved powerless to check the progress of the disease. They thus failed in one-third of the severe cases, whilst, without exception, successful in the slighter forms. In some of these unsuccessful cases the use of quinine diminished the sugar. This remedy, advocated by Blumenthal (*Berliner Klinische Wochenschrift*, 1873, no. 13), deserves a further trial. For details of several cases, reference must be made to the original article. It is, however, noteworthy that the hereditary case, in a girl of seventeen, who died after drinking immoderately of wine, was found at the *post mortem* examination to have pachymeningitis, enormous dilatation of the fourth ventricle, and a small cyst of the corpus striatum.—[It is not said whether the cyst was in the right or the left corpus striatum.—*Rep.*]

W. BATHURST WOODMAN, M.D.

MORONI ON A CASE OF GANGRENE OF THE LOWER EXTREMITY AFTER DIPHTHERIA.—In the *Giornale Veneto delle Scienze Mediche* for April, Dr.

Moroni relates the case of Luigi Zaramella, a boy, aged seven, who was admitted on December 1, 1874, into the hospital at Monselice with gangrene, which had commenced in the right foot, and extended half way up the leg. His parents were healthy, and he had enjoyed good health till the previous month, when he had an attack of diphtheria, which left paralysis, indicated by a nasal voice and the reflux of fluid into the nares. After a convalescence of some days, his right foot became painful and swollen, and there was a return of fever. The redness, at first erysipelatous, became livid; the end of the toes became mummified; and dry gangrene declared itself, and, as already said, extended half way up the leg. During the first two weeks, the evening temperature was 39.5° Cent. (103.1° Fahr.); the pulse 120. Physical examination of the chest gave only negative results; the child was very restless in consequence of the acute pain in the limb. He refused food, and did not sleep. The pulsations of the right femoral artery did not differ from those of the left.

Anodyne and aromatic cataplasms were applied to the part; and opium was given internally in quantities gradually increased from a grain and a half to seven and a half grains in twenty-four hours. This treatment had no effect; on the contrary, the mortification extended as far as the upper third of the leg. Dr. Moroni bled the patient from the arm to more than twenty ounces; on the following day—perhaps, he says, by an accidental coincidence—the gangrene did not extend, and two days afterwards there was a distinct line of demarcation. Amputation was performed on December 15, the elastic bandage being used. The wound healed well, and the patient was discharged cured on January 25, having also recovered from his paralysis without any special treatment.

Dr. Moroni observes that the occurrence of spontaneous gangrene of a limb in a robust boy, as a sequel of diphtheria, is a fact of very rare occurrence, and one which at first it is difficult to explain. It is not possible to admit the existence of disease of the arterial coats in so young a boy; and, as he was always healthy before the diphtheria, the occurrence of the gangrene must be ascribed to this and to subsequent embolism. Labadie-Lagrave found in cases of diphtheria indications of vegetative endocarditis, most frequently affecting the mitral, and rarely the sigmoid valves. Bouchart, in 1872, called attention to the occurrence of myocarditis and endocarditis in diphtheria. Mosler, in Germany, about the same time, described degeneration of the myocardium as a rather frequent cause of sudden death in cases of diphtheria, even where recovery was apparently to be expected. These observations, and those of Brigidi of Florence, point to the embolic origin of the gangrene in the case now described.

A. HENRY, M.D.

COHEN ON APSITHURIA.—In the *Medical and Surgical Reporter* of May 1 is a paper by Dr. J. S. Cohen, in which he speaks of this rare affection. 'Apsithuria (inability to whisper) is a manifestation of disease not often encountered. Many patients with aphonia (inability to vocalise [phonate]) are supposed to be unable to whisper also, but upon close examination it will be found in the vast majority of instances that the inability to whisper is only apparent. At a short distance from the patient's mouth, not the slightest indication of a whispering

sound can be heard. Still, on placing the ear close to the patient's mouth, or on using an ear-trumpet, a more or less feeble whisper can be detected; and conversation can even be carried on with the patient in that way, though for the ordinary purposes of life the patient is really as bad off as if the debility of the whisper were an actual inability; and is compelled to resort to tablets or finger-spelling in order to communicate with others. Of cases of this kind I have met several examples. In some of them, the very evidence afforded by the experimental examination just indicated, has restored confidence to the mind; and the ability to whisper has at once begun to increase, and its full power become restored before the aphonia has been overcome. In others, the power of whispering loud enough to be heard in conversation has increased *pari passu* with the recovery of the voice. In one case under my care, on the other hand, there was no increase in the power of the whisper, nor any return of voice.

J. MILNER FOTHERGILL.

RECENT PAPERS.

A New Contribution to the Clinical History of Diphtheria, based on Cases observed in Tunis in 1874. By Dr. G. Ferroni. (*Annali Universali di Medicina e Chirurgia*, May, 1875.)

On Vomiting in Phthisis. By Dr. Victor Revillout. (*Gazette des Hôpitaux*, June 12.)

Variola caused by Infected Paper-Rags. By Dr. F. B. A. Lewis. (*Boston Medical and Surgical Journal*, June 3.)

On the Influence exercised by the Position of the Limbs on their Articulations, from a Clinical and Therapeutic Point of View. By Dr. Massé. (*Montpellier Médical*, June, 1875.)

On a Case of Paralysis Agitans. By Giorgio Tonetti. (*Lo Sperimentale*, June, 1875.)

A Case of Renal Calculus followed by Death. By Dr. S. Mancini. (*Ibid.*)

A Few Observations on Miasmatic Pneumonia. By Dr. G. Vitantonio. (*Ibid.*)

On an Epidemic of Typhus lately observed at Ponsacco. By Dr. S. Boni. (*Ibid.*)

SURGERY.

KÖSTER ON THE PATHOGENY OF SPONTANEOUS ANEURISM.—At a recent meeting of the Nieder-rheinische Gesellschaft, the proceedings of which are reported in the *Berliner Klinische Wochenschrift*, no. 23, 1875, Professor Köster spoke on the origin of spontaneous aneurism and chronic mesarteritis. Against the generally accepted view that the spontaneous and so-called true aneurism is due to chronic endarteritis and the consequent metamorphoses, several facts may be brought forward. An aneurism may be seated on a perfectly healthy artery. In the second place, the frequency of endarteritis is much greater than that of aneurism. Again, there are no anatomical grounds for supposing that a pouching of any part of an arterial wall necessarily follows disease or degeneration of the inner membrane which, especially in the smaller vessels, is much too thin to withstand the pressure of the blood. Finally, as has been proved by the statistics of Lisfranc and Crisp, the frequency of aneurism diminishes towards the end of the middle period of life, whilst arterial atheroma is met with mostly in old people. Dr. Köster, following Helmstedter in examinations of small protrusions of the walls of the aorta, and extending his researches to small aneurismal pouches of other large arterial trunks,

found in the substance of the muscular coat numerous clear patches which he regarded as due to an inflammatory process and to proliferation of connective tissue, and analogous to those met with in hepatic cirrhosis and partial interstitial nephritis. Each patch is prolonged into the adventitia by a small pedicle in which vessels are always to be found, that is to say, each patch is developed around one of the nutritive vessels. The pedicle contains afferent and efferent arterioles, veins, and lymphatics, and moreover at the commencement of the pedicle in the adventitia a cellular connective tissue proliferation is to be found. Thus, according to Professor Köster, the inflammatory process commences around the nutritive vessels in the outer portions of the artery, passes directly into the muscular coat, and there becomes much extended along the branching capillaries. Not unfrequently the inflammatory patches extend through the whole thickness of the muscular coat, always following the course of the small branches of the nutritive vessels, which often extend as far as and occasionally pass into the inner membrane. In the latter case, portions of the inner membrane undergo inflammatory thickening. In consequence of this discrete chronic mesarteritis the muscular coat (elastic fibres and muscle-cells) breaks down, until, finally, but a few small flakes of muscular substance can be seen in the middle coat. The inner coat and the thickened tunica adventitia form one membrane of homogeneous histological structure, which is very vascular. There is no longer any separation of the arterial wall into two coats. These degenerated portions, in which traces of muscular tissue may often still be observed, are protruded, and then aneurism is produced. Aneurism arises not through endarteritis, but through mesarteritis. The distinctions of aneurisma verum, and aneurisma verum externum et internum, and the like, will not, Professor Köster states, hold good, since after the protrusion of a pouch it is impossible to make out what share in the formation of the wall of such pouch is taken by the inner or the outer coat, and since the muscular coat is reduced to mere traces, and is never continuous along the whole wall of the aneurism.

W. JOHNSON SMITH.

MARTINEAU ON SUDDEN DEATH FROM PUNCTURE OF A HYDATID CYST.—At a meeting of the Parisian Société Médicale des Hôpitaux, held on March 26 last (*Union Médicale*), M. Martineau said that a man aged thirty-one was admitted to the Lariboisière on January 22. He had been quite well, according to his own account, till three days before, when he was seized with pain in the right hypochondriac and epigastric regions. Except lead-colic and aguish attacks, beginning in Africa and lasting eight years, there was no history of previous disease. There was no syphilis, nor alcoholism. Hydatid tumours in the epigastric region, and enlarged liver, were diagnosed. On the 24th the tumour was punctured with a capillary trocar. A few grammes of fluid, first clear, then blood-stained, flowed out, and then the cannula became choked with a membrane. Echinococcus-hooklets were found on microscopic examination, which only took three or four minutes. The man then suddenly became ill, had severe dyspnoea, nausea, and vomiting; his respiration and the heart's action were suspended, and long strings of glairy whitish mucus came from his mouth, and filled the bronchi and trachea. His face was pale, covered with cold sweat. Artificial respiration

galvanism, and other means failed to restore him, and he died at the end of about twenty minutes. The *post mortem* examination showed substernal emphysema of the subcutaneous tissues and old pleuritic adhesions. In the apex of the left lung was a nodule of caseous pneumonia. There was some emphysema of the lungs, probably produced by the mode of death. The bronchi were filled and plugged with the strings of mucus referred to. There were signs of old pericarditis, and some old mitral mischief. Two hydatid cysts lay on the lower surface of the liver—one in the right lobe, one in the left; the latter had been punctured. Nothing abnormal was found in the peritoneum. M. Martineau ascribes this death to a reflex paralysis of the pneumogastric nerve. He believes the case to be unique, as regards puncture of the liver, though sudden death is known to follow contusions of the abdomen, and intestinal lesions. In the discussion which followed, M. Gérin-Roze referred to M. Bérenger-Féraud's paper, in the *Bulletin de Thérapeutique*, December 15, 1874, for instances of the harmlessness of capillary punctures; he had known patients walk about the day after. He had punctured one cyst seven times in five months. M. Dumontpallier had seen a frog die suddenly of syncope in M. Claude Bernard's laboratory, when the abdomen was opened, and a portion of intestine was seized, with a view to ligature it. M. J. Simon said that in Iceland, where hydatid cysts were very common, they were not now tapped, but only pricked several times. Many cases have been cured in this way. But it would seem as if even a slight puncture might open the door to death. M. J. Guyot knew of seven or eight deaths within twenty-four hours after tapping hydatid cysts of the liver. He, therefore, had recourse to Vienna paste before tapping. M. Woillez narrated a case in which he had intended to tap what he believed to be a very large hydatid cyst of the liver. It gradually diminished in volume, and at last disappeared without any operative interference. Neither the urine, sputa, nor stools of the patient presented anything unusual. Was this really a hydatid? He had never seen a similar case.

W. BATHURST WOODMAN, M.D.

RECENT PAPERS.

Wound of the whole Substance of the Trachea followed by complete Recovery. By Dr. L. Stagi. (*Lo Sperimentale*, June, 1875.)

New Researches on Naso-Pharyngeal Irrigation. By Dr. Aloin. (*Lyon Médical*, June 13.)

Contribution to the Study of Intralaryngeal Tumours. By Dr. Edward Fournie. (*Gazette des Hôpitaux*, June 10.)

On Capillary Puncture of the Bladder, and specially on the Novel Indications to which it gives rise and which it fulfils. By Dr. A. Fochier.

Case of Stricture of Urethra, almost impassible, cured by Divulsion, by Sir Henry Thompson's American Modified Divulser. By Dr. Reddy. (*Canada Medical and Surgical Journal*, June, 1875.)

RELIGION AT THE ANTIPODES.—The sickness which has been unusually prevalent at Melbourne during the last three months led some people to ask that a day might be set apart for humiliation and prayer, but their request has not been complied with. The *Argus* published a leader deprecating the suggestion, and for days after its columns were filled with letters upon providential interpositions and the efficacy of prayer, which showed a wonderful eagerness to enter upon the discussion of these questions.

MATERIA MEDICA AND THERAPEUTICS.

SMITH ON ATROPIA AS A NERVOUS STIMULANT. In the *Detroit Review of Medicine* for June, Dr. Curtis Smith writes on atropia from a clinical point of view. After alluding to its effects upon the circulation in increasing the action of the heart and accelerating the blood flow, he says atropia is almost the only reliable respiratory stimulant with which he is acquainted. Under its influence the respirations are increased from six to twelve per minute above the normal standard. This balances the increased circulation. It thus will be seen that atropia will increase the quantity of blood flowing through any given part in a given time, thus giving opportunity for increased nutrition, or the increased stimulation naturally growing out of an increased supply of blood. This is a very important point to gain in very many cases of diminished nerve-energy, where the nerve-centres have become impaired or debilitated from any cause, especially from those causes that rapidly depress the nervous system. Nor can we avoid the conclusion that, if the number of respirations is proportionately increased with the circulation, the blood is all the while sufficiently supplied with oxygen to free it from excess of impurities, and that it goes to the nerve-centres, not only in increased supplies, but as pure and as stimulating as it can possibly be. Atropia exerts a powerful influence over the secretions of mucous membranes, causing a diminished amount of discharge where the secretions are greatly in excess. In excessive diaphoresis, it has become one of our standard remedies.

We sometimes find cases (Dr. Smith says) that, from some cause, are suffering from great nervous debility or prostration. In these we often observe the sluggish condition of the capillary circulation, the heart acting too feebly and not infrequently too slowly, and, in consequence of this interference, with a partial failure of the circulation, the lungs become partially congested, or, in other words, the pulmonary circulation is also sluggish. Growing out of these difficulties, there come on occasional attacks of dyspnoea—a feeling of impending suffocation. It is at once evident that the whole train of symptoms is traceable to a want of tone in the nerve-centres that control both the circulation and respiration, and the indication is plainly to stimulate these. What agent or agents shall we select. Ammonia will answer; so will alcohol, valerian, etc., etc. But are they the best? I think not. Give, in such a case, the sixtieth or even the thirtieth of a grain of atropia, and if your diagnosis of the case is in accordance with the above description, you will soon notice great relief to the patient. With this agent you not only stimulate the general nervous and circulating systems, but you give the very agent that is *par excellence* the stimulant of both, while with almost all other stimulants you fail to reach, except very indirectly, the respiratory nerve centres, and are therefore a much longer time in giving relief, and the relief is not so complete. Of course, in such cases of nervous debility, atropia is not the only agent demanded for the complete cure of the case. I only commend it as a stimulant to be used while the more solid or substantial nerve-tonics are employed to really strengthen the nerves, as strychnia,

phosphorus, iron, quinia, proper food, good hygiene, etc. We doubtless all recognise the difference between a stimulant and a tonic. Atropia is the former, and but feebly, if at all, a tonic for the nerves. But we all know, too, how much more valuable, under some circumstances, a stimulant is than a tonic, and *vice versa*.

I have, at this time, a case of an old lady, whose system, especially the nervous, is broken down by age and recent disease. From her disease she is clearly convalescent, but the nervous exhaustion is so great that if left unstimulated her pulse drops below fifty, is feeble, the capillary circulation is sluggish, and the pulmonary vessels carry blood through the lungs with diminished rapidity, from which cause, with the conditions before named, she suffers from a feeling of impending suffocation, which causes loss of sleep and great restlessness and mental anxiety. In this case, as in others of a similar character, I have found no agent equal to atropia. In the above instance, the patient gets the fortieth of a grain of atropia as often as occasion demands, and with great relief, while alcohol and other stimulants, freely given, do not prove effectual, though they are valuable.

A distinction should be made between cases of dyspnoea like this one and those that are purely hysterical, occurring in a stout female. Whether atropia would be of any value in the latter case, I know not from experience, but infer that it probably would not prove useful.

I have spoken of its great value in arresting profuse alimentary discharges. Let me now merely mention its value as an adjuvant to cathartics in ordinary and obstinate cases of constipation. This point in its value is by no means new. Added to laxative pills, it renders their action more certain and thorough by stimulating the nerves supplying the muscular and mucous coats of the bowels.

In cases of faecal obstruction, it is a most valuable agent, and will cause, or greatly assist in causing, full and free evacuations where cathartics alone would act but indifferently, or even be contraindicated. For instance, take a case where no action has followed the liberal use of active cathartics, after their persistent use, and there is undoubted evidence of faecal impaction. It may become unsafe to give more cathartics, and you turn your attention to giving large enemata. If you now give atropia, it will often greatly assist in causing full and large evacuations. Strychnia may be here given for a similar reason, but, I think, is not as valuable as the atropia, and is not as safe. If the bowels have become inflamed during faecal impaction, atropia can be given with advantage, while it would be unsafe to give cathartics. Whatever good atropia, given for its systemic effects, may accomplish, I think is accomplished only by its being a most powerful nervous stimulant, both to the organic and inorganic systems.

J. MILNER FOTHERGILL, M.D.

MOREY ON STRYCHNIA EATING AS AN ANTIDOTE TO ALCOHOLISM.—Dr. H. C. Morey, of Gilroy, California, sends the following account of a strychnia-eater to the *Pacific Medical Journal*.

The individual in question is a man about fifty-two years of age, about five feet eight inches in height, and weighs about one hundred and fifty-eight pounds. He is of dark complexion, very plain in appearance, very eccentric and peculiar in his habits, and always

keeps his own counsel; has a good intellect, but a limited education.

I first became acquainted with this man in the fall of 1861, and soon learned of his habit of eating strychnia after a long and continued debauch, and in a condition bordering on delirium tremens. The first time my attention was particularly called to it, he wished me to give him a bottle of strychnia, which I did at night, about bed-time. He took the bottle, pouring the strychnia into his hand, and threw it into his mouth as carelessly as though it were salt, and in the course of half-an-hour, not feeling the effects from it that he wished, he repeated it, and continued to do so until he became perfectly sober. The quantity required would correspond to the length of time he had been drinking, and the quantity of whisky he had drunk. I was struck with the wonderful effect it had to completely sober him, and leave his system entirely free of any nervous disturbance, and without the reddened and bloated appearance of the face, the dull heavy eyes, and irritable stomach of the drunkard. After a two weeks' drunkenness, with all the appearances of approaching delirium tremens, he got up in the morning with his mind clear, his eyes bright, his skin clear and fair, and with all the appearance of a man in perfect health and vigour, and ate as hearty a breakfast as usual, and went to his work as though he had never taken a drop of whisky in his life. My curiosity being excited at what seemed so unaccountable an occurrence, I began questioning him as to when he commenced its use, and what induced him to take it, but found him very reticent, and have not to this day ascertained the causes that first led him to its use. All he will tell is that he commenced its use in 1856. From 1861 to 1867, I saw him very frequently, and almost as often have seen him take the strychnia, until it ceased to be a curiosity, except to study its physiological action. In every instance when he took it, every appearance of dissipation would disappear in a very short time. Whether strychnia is an antidote to alcoholic poison, and *vice versa*, was a study for which I could find no authority to guide my conclusions.

From 1867, I did not see him until the month of November, 1874, when he came to this place and called on me for strychnia, as of old. I told my clerk to give him all he wanted. He gave him a bottle, from which he took about twenty grains. In an hour he was all right, and sober as ever.

RECENT PAPERS.

- Notes on Comparative Therapeutics: Aconite and Aconitine. By Dr. Giuseppe Levi. (*Journal de Thérapeutique*, June 10.)
Application of Picrotoxine to the Treatment of Epilepsy. By Dr. Planat. (*Journal de Thérapeutique*, June 10, 1875.)
Arsenic in certain Gastric Affections. By Dr. Durselen. (*Detroit Review of Medicine and Pharmacy*, June, 1875.)

OBSTETRICS AND GYNÆCOLOGY.

CHOUPEE ON THE EMPLOYMENT OF CHLORAL AS AN ANÆSTHETIC IN NATURAL LABOUR.—Dr. H. Choupee, in the *Annales de Gynécologie*, May, 1875, has collected a large number of cases, recorded by various authors, exemplifying the use of chloral in

labour; and from these, together with his own observations, he concludes that chloral, even in a dose capable of producing complete anæsthesia, in no way suppresses, or even diminishes, the contractility of the unstriated muscular fibres in general, the uterus included. Chloral, which is capable of producing in a marked degree cutaneous anæsthesia, can equally nullify the pains of labour. This suppression of pain is not due to diminution of the uterine contractions either in their intensity or their frequency; on the contrary, all their power is preserved, and, if they seem occasionally to be retarded, that which they lose in frequency they gain in force; so much so, that labour is accelerated and not retarded. When uterine inertia is recognised as the cause of too prolonged labour, which has exhausted the powers of the patient, or when the patient is particularly irritable and fatigued by the useless efforts, and the uterine contractions diminish in frequency or intensity—when inertia is threatened, in fact—chloral, administered in a dose sufficient to produce complete anæsthesia, is generally capable of restoring energy to the uterus, and force and regularity to the contractions.

Neither the infant nor the mother is injured by chloral anæsthesia. M. Pelissier, who has employed chloral largely, states that when administered prudently and in suitable doses, it is perfectly innocuous; indeed, the fœtus runs less risk of becoming asphyxiated. No evil after-effects retarding convalescence have ever been observed; on the contrary, patients seem to rally more rapidly from having been spared so much fatigue.

It remains to indicate more precisely in what cases chloral should be administered, at what stage of labour it ought to be given, in what dose, in what form, and by what channel.

Chloral will agree whenever it procures sleep, induces repose, and lessens the pains of parturition. It should especially be employed in tedious labours, and in primiparæ, because then the pains have an intensity which we only find exceptionally in subsequent confinements. It often happens that, the pains being very intense and the patient very nervous, force is wasted uselessly; and at the moment when they have, above all, need of all their force for the last expulsive efforts, the patients are fatigued, and the uterus ceases to contract. In these cases chloral, which procures repose and which prevents the patient from wasting her strength, is formally indicated.

Among nervous patients, who excite themselves and complain beyond measure, chloral will expedite delivery; and, even if during pregnancy we can promise to materially diminish the pains of labour, we shall lessen considerably the patient's apprehension.

Among hysterical patients, chloral acts beneficially.

The consideration of the employment of chloral in operative midwifery, and in eclampsia, as advocated by Dr. Playfair, is purposely omitted here, in accordance with the title of the paper.

When should chloral be given? In the immense majority of cases, when the dilatation of the os is complete—just as the expulsive pains commence. It is only in exceptional cases, and where patients suffer unusually, that chloral should be given during the period of dilatation.

The dose of chloral necessary will vary with the susceptibility of the patient, and with the effect one

wishes to obtain. The dose generally varies from one drachm to one and a half drachm, given in two doses at half hour's interval, or in fifteen-grain doses every quarter of an hour, if we do not desire too rapid an effect.

The natural channel for its administration, and the one which should always have the preference, unless contraindicated, is by the stomach. The syrup of gooseberry is the best agent for masking the pungent flavour; and the solution should be made of such a strength that a teaspoonful represents fifteen grains. Should vomiting precede or follow its administration, it may be given by the rectum. As regards intravenous or hypodermic injections, they are too dangerous methods for ordinary natural labour.

ARTHUR W. EDIS, M.D.

OPHTHALMOLOGY AND OTOLOGY.

HIRSCHBERG ON CONCUSSION OF THE RETINA, AND ON FOREIGN BODIES IN THE EYE-BALL.—In some observations on injuries of the eyes (*Berliner Klinische Wochenschrift*, May 31), Dr. Hirschberg draws attention to the fact that loss of sight after severe blows in the neighbourhood of the eye during the preophthalmoscopic period was very frequently attributed to commotion or concussion of the retina, terms rarely employed at the present time, when experience has taught us that amaurosis and even extensive amblyopia are usually accompanied by some well-marked anatomical lesion. When amaurosis follows an injury, such as a violent blow upon the parts round the eye, it is nearly always associated with atrophy of the optic nerves, and in many of these cases it is probable that some severe damage has been inflicted upon the optic nerve between the eyeball and the base of the brain, and this assumption is supported by experiments upon animals (*Wochenschrift*, no. 37, 1869). According to the statement and experience of Berlin (*Zehender's Monatsblätter*, 1873), when temporary loss of sight has occurred from a contusion of the eyeball, there will be found a very decided although a transitory amount of opacity in the retina, the result of œdema it is supposed, and which is probably associated with the presence of hæmorrhage between the various tunics of the eye. From experiments upon animals it appears that the immediate effect of concussion upon the eye is a narrowing of the arterial trunks, which in turn is soon followed by their dilatation, and by the establishment of a condition of ischæmia.

In support of Berlin's conclusions, Hirschberg records the case of a man, aged twenty-nine, who received a severe blow upon the right eye from the end of a heavy rope; vision was at once reduced to perception of light, and after the lapse of ten minutes large objects only could be discerned. On the day following the vision was nearly normal again, but there was mydriasis, and a slight rupture of the inner margin of the pupil. With the ophthalmoscope Hirschberg could detect a faint opalescence of the retina, which radiated outwards in all directions from the optic papilla, but which did not involve the yellow spot; this appearance was to be distinguished from that of diffuse retinitis by the optic disc remaining unaltered and the vessels of the fundus being no larger (more congested) than those of the uninjured eye. In one spot, there was the appear-

ance of a slight detachment of the retina. In a few hours these appearances could no longer be seen; vision was perfectly restored, except that there remained slight mydriasis and an impairment of the accommodation.

With reference to foreign bodies, Hirschberg records another instance in which a foreign body had entered the eyeball, where it could be readily seen with the ophthalmoscope, and yet good vision was retained; similar instances have been recorded by Von Graefe and by Jacobson (*Archiv für Ophthalmol.*) In the present case a splinter of steel had penetrated the right eye of a button-maker, and without wounding the lens had imbedded itself upon the retina immediately above and to the outer side of the yellow spot. A week after the accident the foreign body was readily seen; it glistened like polished metal, and with the exception of some membranous films in the vitreous body there was no evidence of structural lesion. On very minute examination it was possible to trace the site of entrance in the sclerotic, at some little distance beyond the margin of the cornea. The patient could read Snellen $1\frac{1}{2}$ with + 6 glass; he was kept in a dark room, and the eye was carefully bandaged and treated with atropia. After an interval of six months the condition of the eye had not materially changed, except that the vitreous opacities were less marked, and the colour of the fundus around the foreign body was almost restored. The vision of the eye had not in any appreciable degree deteriorated.

[The fortunate result which frequently attends such a severe accident as the above, independently of the fact that the ciliary processes and the crystalline lens have usually escaped injury, is in some measure due to the nature and material of the foreign body itself. Thus substances which are not readily acted upon by the humours of the eye, such as fragments of hard and polished metal, and more especially splinters of glass, have been known to remain and to rest inert within the eyeball during long periods, while bodies of a softer texture will speedily react upon the tissues around, by causing rust, etc., and thus induce suppuration and involve the whole eyeball in destructive inflammation.—*Rep.*] BOWATER J. VERNON.

CHIRALT ON EXTRACTION OF CATARACT BY A MEDIAN SECTION THROUGH THE CORNEA.—The editor of *La Crónica Oftalmológica*, of April 12, gives a short account of a method of operation which has been practised since 1869 by his fellow-countryman, Dr. Vicente Chiralt, for the extraction of cataract, and with very marked success. The operation consists of three stages, the first, and most important of them, being the cutting a section transversely across the cornea at the junction of the middle with the lower third, by means of a Von Graefe's knife, which is entered at the sclero-corneal margin and is passed rapidly across the anterior chamber, and made to emerge on the opposite and corresponding point. No iridectomy is performed, and chloroform is considered unnecessary. The capsule is opened in the usual way as the second stage of the operation, and the lens is generally removed without difficulty with the aid of slight pressure upon the upper lid, assisted by Von Graefe's elastic spoon.

Dr. Chiralt considers the operation a complete success, when the patient can read No. IV. Snellen; moderately successful when some letter larger than No. IV. is read; and unsuccessful when the

largest types only can be read. When measured in this way, his results may be thus stated:—

Good, when the patient could read S. IV.	73
Moderate, " " " some larger type	7
Bad, " " " only S.C. or C.C.	5
	85

The editor admits the similarity of this operation to that proposed and practised by Le Brun; but he claims for Dr. Chiralt the priority of its performance. BOWATER J. VERNON.

BACHER ON CHRONIC INFLAMMATION OF THE LACHRYMAL SAC.—In the *Medicinisch-Chirurgische Centralblatt* (nos. 11 and 12) Dr. Sigmund Bacher gives the history and the details of three cases of this kind which are, as he admits, common enough, but whose exciting cause is not always easy to be found. In each instance the inflammatory mischief had commenced elsewhere, and the lachrymal sac had become secondarily affected. The first case was that of a girl, aged twelve, who had a small abscess in the integument of the eyelid, and an obstruction to the escape of the tears with a dilatation of the sac subsequently. The second case occurred in a young woman, aged twenty-four, who had suffered from persistent nasal catarrh after measles; and the last instance occurred in a man, aged thirty-eight, who had suffered from a chronic ozaena of a specific nature. In all three cases the same treatment was adopted, the lower canaliculus was first dilated, and then the passage was slit open with Aert's scissors, and the nasal passages were then explored with the smallest of Bowman's probes. The probe was for some time passed daily, and its use was not altogether discontinued for many weeks. Dr. Bacher does not put much faith in the value of larger probes than Bowman's no. 4, and he does not believe in the use of probes at all when the disease has been of long standing, in which the discharge is purulent rather than muciform, and in which one would expect the walls of the sac to have degenerated and to have become unable to exercise any power of contraction. BOWATER J. VERNON.

BELLIÈRE ON PHTHISICAL OTITIS.—In the *Lyon Médical* for March there is a short review of M. Bellière's work on the otitis of phthisical patients. M. Bellière considers (1) that the otitis seen in such cases is not a tubercular otitis, but a simple catarrh of the cavity, and (2) that this catarrh always follows a pathological state of the pharyngeal mucous membrane. He rejects the opinion of those who, with Ménière and Le Maître, consider tuberculation of the mastoid cells as the point of origin. He has several times determined the integrity of the mastoid cells in such patients while suffering from otitis. On the other hand, he cites in favour of the propagation of the pharyngeal inflammation through the Eustachian tube to the tympanic cavity, the frequency of the glandular enlargements of the throat in such patients, and the fact that the lesions of the otitis of typhoid fever and of tuberculosis are identical.

W. LAIDLAW PURVES.

RECENT PAPERS.

Conium and its Use in Diseases of the Eye. By Dr. Curtis. (*New York Medical Record*, May 22.)
Observations on Miners' Nystagmus (a new disease). By Dr. Charles Bell Taylor. (*Lancet*, June 12.)

On an Unusual Melanotic Growth in the Eye. By John Willkins, F.R.C.S. (*Australian Medical Journal*, February, 1875.)

On Lachrymal Conjunctivitis, and its Treatment. By Dr. Bloc. (*Montpellier Médical*, June, 1875.)

DERMATOLOGY.

POLLATSCHEK ON MALIGNANT PUSTULE.—Dr. Pollatschek, of Bellatine (in the valley of the Mur, a tributary of the river Drave, in Western Hungary, between the Platten See and Croatia), describes in a short but important communication to the *Allgemeine Wiener Med. Zeitung* (no. 52, 1874) the following eight cases of the disease, rarely observed in man but frequent in domestic animals, which has been variously named *Charbon* by the French, *Milzbrand* by the German veterinary surgeons, malignant pustule, splenic fever, splenic apoplexy, bacterial septicæmia, etc. They all occurred during the latter part of last summer, or in October following.

In the flat and low district above described, it appears that splenic fever is endemic among the cattle, and is most common in the months of August and September, the time when the malarial fever of the country is most rife among the inhabitants. (This connection between malaria and the milzbrand of cattle, both in locality and season, has been noticed by Heusinger.) The plague affects horned cattle, sheep, and swine, horses more rarely; and Dr. Pollatschek has never seen an epidemic except among sheep. In fact, the cases ordinarily observed show little disposition to spread.

The first group of cases began last July. A peasant killed a cow which, he saw, was sickening for splenic fever, and sold the meat. He took care not to touch the carcass himself and escaped the disease; but a man who had helped to skin and cut up the cow was attacked the next day with headache, nausea, and shivering. On the third day he felt worse; his right arm was red and swollen, and on the back of the hand was a hard, whitish, irritable pimple, followed by similar ones on the other hand and on the face. Some of these papules became simple vesicles, which burst and dried up, but a few behaved like boils, the deep layer of the cutis being involved and forming a hard nodule under the vesicle. In a fortnight the man was well again without any special treatment, but he remained weak and pale for some time afterwards.

The second patient had only held the skin with one hand while the cow was disembowelled, but the whole of that arm was severely inflamed. This only began four days after the infection. The same constitutional symptoms as those of the last case were followed by the appearance of a carbuncle on the inner side of the forearm. This was rubbed with caustic, but became a gangrenous sore, and great bullæ appeared over the arm. There was high fever with delirium. After a week's illness, the patient began to recover, under treatment with quinine and carbolic acid internally and nitric acid and carbolic acid lotion locally; the carbuncle healed, and the arm returned to its normal condition, but convalescence was very slow.

The third and fourth cases of the disease occurred in two men who also helped in skinning and dressing the carcass. One was attacked with headache and malaise on the third and the other on the fourth day, followed by an eruption of papules on the inner

side of the forearm. These were at once burnt with caustic (?nitrate of silver); and in a week both patients were well.

The next sufferer was a woman, about fifty years old, who had wiped the flesh, still warm, with a wet cloth, before offering it for sale. A fortnight after the killing of the cow she came to Dr. Pollatschek, looking very ill, and showed him an unhealthy ulcer on the back of her right hand; this was touched with lunar caustic and dressed with carbolic acid. It cleansed and gradually healed, and the patient recovered with the help of tonics.

The sixth and last case was that of a tanner who bought the cow's hide. In a few days he was attacked by rigors, headache, lassitude, and discomfort, without any local manifestation of the disease. He knew from experience what his illness depended on, and had, in fact, been suspicious of the hide when he bought it, for it smelt ill, and turned the lime-bath into which he put it to an unusual colour. He showed Dr. Pollatschek soft spots in the hide which, no doubt, corresponded with furuncles during life. This patient recovered without medicine.

The second group of cases began with a peasant, who came to Dr. Pollatschek last October, with a carbuncle on the inner aspect of the right forearm, which was recognised as due to infection from charbon. He then confessed that, three days before, he had slaughtered a cow which he found suffering from the disease, and with the help of his mother-in-law had dressed the carcass and sold the meat. Caustic was applied to the sore, and the man recovered in a few days. But the old woman was much more severely affected. Beside several deep boils on her left forearm, erysipelas had spread nearly up to the shoulder, and she was very feverish. Next day, in spite of cauterisation and the application of ice, the inflammation had spread over the shoulder and side of the chest. Large doses of quinine with carbolic acid were ordered, but a rigor occurred in the evening; the sores became gangrenous, and the patient (sixty years old) died next day, just a week after the cow was killed. [There seems to have been no necropsy, and in none of the cases is any mention made of the size of the spleen, of purpura, or of the characters of the blood in the persons affected.]

The flesh of both the cows was eaten by several of the villagers, but in no case with any symptoms of the disease. Indeed, the only instance in which it can even be supposed to have done any mischief was in a woman, who had slight diarrhoea for a couple of days afterwards; and her children, 'who had eaten themselves as full as their mother,' escaped entirely.

Dr. Pollatschek draws the following conclusions from these instructive cases. 1. 'Black' or 'bluepox,' charbon-carbuncle, and gangrenous splenic erysipelas, are parts of the same disease. In the above cases there were five of genuine carbuncle, one of blackpox (malignant pustule), and one of gangrenous erysipelas. He thinks that the same specific irritant will fail to injure the thick, smooth, hairless skin of the palm, will produce pustules or bullæ on the thick cutis with large hair-follicles which covers the back of the hand, and outside of the forehead, and will affect the thinner integument of the flexor surface by inflammatory nodules in the deep layer of corium and the subcutaneous tissue, producing characteristic boils or carbuncles. 2. The poison can act through unwounded skin. 3. The infection is greatest when the flesh is still warm. None of the

persons who bought the infected meat, and carried it home, suffered in consequence. 4. The diseased meat when cooked is harmless, or practically so, when eaten.

P. H. PYE-SMITH, M.D.

RECENT PAPERS.

Classification of Skin-Diseases according to their Anatomical Lesions. By M. E. Guibout. (*Gazette des Hôpitaux*, June 8.)

On Non-Spontaneous Symptoms arising in a Case of Artificial Eczema. By M. Behier. (*Gazette des Hôpitaux*, May 27.)

REVIEWS.

On Nose, Throat, and Ear Instruments. By T. F. RUMBOLD, M.D.

In a small pamphlet with the title 'Nose, Throat, and Ear: Instruments and Remarks,' Dr. Thomas F. Rumbold, of St. Louis, describes various modifications of instruments already in use, which he has found of service in the diagnosis and treatment of affections of the parts named. Dr. Rumbold finds a tongue-depressor, with a handle and shaft, twelve inches long, the most suitable, as by it the patient depresses his own tongue without having his hand in the way of the surgeon, and thus leaves both hands of the latter free to operate. The tongue-piece is changeable, so that longer or shorter blades may be used, and can be placed at different angles, so that the base of the tongue may be depressed as desired. To the usual pharyngeal mirror he has added hinge-joints and a pivot, by which means any desired inclination of the plane of the mirror, and any direction of the longer diameter of the reflector, may be obtained. Instead of the ordinary hook-shaped uvula-retractor, he uses a retractor which he describes as 'a tube, six inches long and one-eighth of an inch in diameter, having at one end an enlargement of three-sixteenths of an inch transversely, and cup-shaped, for the purpose of receiving the uvula. The other extremity is trumpet-shaped, and one inch in diameter, and covered by sheet India-rubber. In its use, the smaller extremity of the instrument is applied gently to the uvula, whilst the air is expelled from the tube by slight pressure on the rubber extremity. This done, the uvula is drawn into the tube about a quarter of an inch; only slight traction is necessary to lift the uvula, and draw the soft palate forward, thus the antero-posterior diameter of the passage may be increased from one quarter to one half inch. If carefully handled, patients generally do not feel the application of the instrument.' Under the name of the 'spreading soft-palate retractor,' Dr. Rumbold introduces to the profession an instrument which promises to be of great use in operations on the walls of the nasopharyngeal cavity. 'The instrument resembles an ordinary palate-hook split longitudinally; the surface of each hook that comes in contact with the soft palate is made convex by binding the plates; the arms are separated by a lever on the handle, and are maintained in this expanded condition by a retainer or wedge—connected with another lever having a spring under it—which insinuates itself between them. . . . By use of this instrument equal retraction of the velum palati—with both relaxation and tension at will—can be effected by the left hand, while the right hand is engaged in operating, and more room is secured during surgical treatment than by any other kind of retractor.'

As an 'Acou-otoscope' is described an instrument which has been long used in England and on the continent under the name of Siegle's speculum, descriptions of which will be found in various text-books. Dr. Rumbold, however, uses the tube connected with the speculum as an auscultating tube, instead of as a suction or condensing tube, as generally used here, and by this means employs the eye and ear simultaneously for observing changes in the membrane.

The spray-producers which he uses for the application of medicinal agents to the mucous membranes of the nasopharyngeal and laryngeal cavities are modifications of the usual nebulizers, the points being so constructed that they conveniently direct the spray against the locality desired to be acted on. To remove the difficulty found in introducing laryngeal forceps sufficiently long to reach the vocal cords through the pharyngeal space without touching any of the structures close to which it passes, Dr. Rumbold has invented a 'tubular laryngeal forceps,' the vertical portion of which, the forceps being in position, can be lengthened by a mechanism on the handle.

W. LAIDLAW PURVES.

Annales des Maladies de l'Oreille et du Larynx.

A bi-monthly journal with the above name has just appeared under the editorship of Drs. Lacharrière, Isambert, and Krishaber. The first number contains an elaborate essay on the classification of diseases of the larynx and pharynx by Dr. Isambert, and an interesting historical article on amygdalotomy by Dr. de Saint-Germain. Dr. Krishaber contributes two papers, one on rhinoscopy, and a second very interesting article on 'Laryngopathies during the Early Phases of Syphilis.' The author's investigations, made at the Hôpital du Midi in the winter of 1872-73 in conjunction with Dr. Mauriac, are opposed to the conclusions of Dr. Ferrus. In fourteen cases of 'secondary syphilitic laryngopathies,' Dr. Krishaber found *plaques muqueuses* ten times on the laryngeal mucous membrane. Dr. Léon Labbé contributes a case of fibro-mucous polypus in the naso-pharyngeal region. The polypus occurred in a girl aged fifteen, and was removed by electric cautery after incision of the soft palate. The author calls attention to the rarity of 'true fibrous nasopharyngeal polypus in any other class of people than young men, but remarks that 'the possibility of true naso-pharyngeal polypi occurring in the adult, old men, or in women, has not been disproved.' The journal contains an excellent abstract of all that is known of Menière's disease and other short papers on aural affections, which will shortly be noticed in detail in these columns. We heartily congratulate the editors on their undertaking, but would venture to suggest that in so special a journal, appearing at comparatively long intervals, it would be very desirable to have each article complete in itself. In the present number, in some of the best papers, the conclusions follow two months hence.

MORELL MACKENZIE, M.D.

Elephantiasis of the Penis after Urethral Stricture.

By R. F. WEIR, M.D. New York.

Dr. R. F. Weir, of New York, reprints from the *Archives of Dermatology* a case of 'Elephantiasis of the Penis,' from stricture of the urethra, treated by amputation of the organ. From the description and woodcut it might perhaps have been called gonorrhoeal warts with inflammatory thickening of the organ. The treatment was successful.

MISCELLANY.

INTERNATIONAL CONGRESS OF MEDICAL SCIENCES.—The organizing committee of the Medical Congress, which is appointed to meet at Brussels on September 19, gives notice that a section of psychological medicine has been created which will occupy itself with questions bearing reference to mental diseases, the treatment of the insane, etc. The committee has also decided on organising an exhibition, to be open during the congress, and near the building where it meets, of new instruments and apparatus used in medicine, surgery, physiology, ophthalmology, etc.

We learn from *Nature* that a great meeting of German ornithologists took place at Brunswick on May 20 to 23. Brehm, Cabanis, Homeyer, Blasius, Reichenow, Pralle, and many other members of the two ornithological societies, were present. The first meeting led to the union of the two societies. It was resolved to request all the members to report to a committee from time to time all observations of interest to science, agriculture, or the economy of forests, that they may make, on the life, manners, use, etc., of German birds. The committee is to publish the materials thus obtained, after due consideration and sifting.

THE following case of poisoning by aniline dye is reported from Stettin. A gentleman had bought a hat in a shop there, and, after having worn it for one or two days, was troubled with unbearable headache; at the same time little ulcers formed upon his forehead, his eyes were inflamed, and the whole of the upper part of his head was much swollen. It was evident that these symptoms were caused by the hat, and upon examination by a chemist it was found that the brown leather in the inside of the hat was coloured with a poisonous aniline dye. It appears that inflammation is unavoidable when this dye is in contact with any part of the skin.

WE learn from *Nature* that a scientific society has recently been established in Caius College, Cambridge, for the diffusion of scientific knowledge among the members of the college, for the reading of essays on scientific subjects, and for the holding of scientific discussions. The society admits within the range of its discussions all sciences of observation. An interesting feature in the scheme of the society's proceedings is that the first half-hour of each meeting is to be devoted to open discussion, to the answering of questions proposed by any member either at the time or at a previous meeting, or to the exhibition of specimens. The first president of the society is Mr. B. Anningson, M.A., M.B., the newly appointed medical officer of health for Cambridge, and the secretary is Mr. Wm. Ewart. A number of papers have been read during the present term. The meetings have been well attended and the discussions well supported.

FLOWERS IN HOSPITALS.—E. A. H., secretary to the Flower Mission, writes to the *Daily News*: 'Having read in the *Daily News* for June 9 a suggestion by a correspondent that flowers should be sent to the sick poor in London, we beg to send you the address of our two depôts, where we most thankfully receive any contributions of flowers and fruit for distribution on Tuesday and Thursday forenoons. Since March 29 we have been supplying hospitals, unions, and missions in various parts of London at the rate, on an average, of from 3,000 to 4,000 little bouquets a week. The intense joy and gratitude of the many recipients passes description, and would well repay all the trouble our kind country friends have taken in sending them. We shall be happy to answer any communication addressed to the secretary of the Flower Mission Home of Industry, Commercial Street, Spitalfields, E.: or Conference Hall, Mildmay Park, N. All parcels should be carriage paid.'

A GOOD EXAMPLE.—The Medical Association of the Gironde has formed a committee of eighteen members, whose special duty it is to take legal proceedings against the unlawful practice of medicine in the department.

A DELUSION EXPOSED.—A 'Spirit Photographer's' trial has taken place before the Correctional Tribunal of Paris, which has resulted in the conviction of certain 'Spirit Photographers' for swindling. Buguet, a photographer, of No. 5, Boulevard Montmartre, allied himself with M. Leymarie, the editor of the *Revue Spirite*, who wrote about him and published fac-similes of his portraits, and with an American named Firman, from whom he learned the art of persuading people that he could, if they only willed strongly enough, conjure up and photograph a likeness of any deceased relation or friend. For a long time the firm did a large business. Twenty francs was the ordinary fee, but many wealthy people voluntarily paid 2,000, 3,000, and even 4,000 francs. Never was fraud more clearly proved. The operator's spirit-box was produced in Court; it contained hundreds of portraits of men, women, boys, and girls of all ages. When customers came desiring spirit-portraits, a young lady, who acted as cashier, adroitly engaged them in conversation in the waiting room, and generally contrived to find some indications of the physiognomy of the person whom it was desired to evoke. Then one of the numerous heads was selected, stuck upon a doll dressed up in muslin, and a hazy portrait of a spirit was produced from it. Buguet guarded himself by saying he could never guarantee a likeness, because much depended on the strength of faith of the applicant, and, moreover, spirits were very capricious, and sometimes when one was called for another would come; but in very many instances the force of imagination was so strong that his dupes believed they saw the portraits of their relations. They burst into tears, fell upon their knees, kissed the photographs, and were profuse in expressions of gratitude to the professor as well as lavish of gifts to him. Notwithstanding the palpable exposure of the imposture in open court, a host of respectable witnesses, including a Russian Marquis, the Comte de Bullet, Mr. Sullivan (formerly United States Minister at Madrid), two French colonels, and several ladies, appeared for the prisoners, and protested that they really had seen unmistakable portraits of deceased relatives. The counsel for the defence, M. Lachaud, spoke for two hours, and alluded to Moses, Isaiah, Tertullian, and other eminent authorities on spirits. The Court, however, thought the charge fully proved, and sentenced Buguet and Leymarie to one year's imprisonment, and Firman to six months.

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The London Medical Record.

WEDNESDAY, JUNE 30, 1875.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

VULPIAN'S EXPERIMENTAL PATHOLOGICAL STUDIES ON THE PHYSIOLOGICAL ACTION OF TOXIC AND MEDICINAL SUBSTANCES.

(Continued from page 383.)

With regard to the influence of jaborandi and atropine on the sudoral secretion, it is known that jaborandi induces a considerable diaphoresis in man. The secretory work of the sudoriparous glands is therefore increased during a varying time, and it can be prevented or arrested completely by administering, either previously to or in the course of the sudoral hypercrinia, a small dose of sulphate of atropine. Physiological data only furnish us with one admissible interpretation of the effects of these substances on the secretion of sweat. We are forcibly led to admit that jaborandi acts on this secretion by paralysing the peripheral extremities of the sympathetic nerve-fibres which proceed to the sudoriparous glands; and that atropia, on the contrary, excites those fibres. M. Vulpian is of opinion that no other explanation can be admitted, because, basing his conclusion on what has been ascertained with regard to the salivary glands, it cannot be supposed that jaborandi and atropia act on the cells of the sudoriparous glands. Notwithstanding everything however M. Vulpian has arrived at two different theories to explain the effects of jaborandi on the sudoriparous and salivary glands, for it will be remembered that he has accepted the notion that the excessive secretion of the submaxillary gland induced by jaborandi is an effect of the excitation produced by that substance on the chorda tympani—that is to say, on the excitatory nerve of the gland—and he has put aside the hypothesis of a paralysis of the sympathetic nerves of that gland. M. Vulpian thinks that such a result is very unsatisfactory; it is repugnant to him to admit, if not absolutely forced to do so, that a substance acts on a system of glands by influencing the sympathetic fibres which innervate those organs, and that the same substance acts in the same manner on another system of glands by the medium of other nerve-fibres than the sympathetic fibres which are also received by these secretory organs. M. Vulpian then proceeds to endeavour to resolve these difficulties, and for that purpose recapitulates the manner in which the sudoriparous glands act, and their physiological relations with the nervous system.

The sudoriparous glands must, he says, be looked upon as having a tendency to secrete continuously in the normal state. The sympathetic nervous system not only intervenes as a check, but it acts in a persistent manner in variable degrees in restraining, moderating, or keeping down the secretory work of those glands. It is in a state of constant activity, which may be compared to the similar state of the

nerve-fibres which keep up the vascular tonus. The variations of this moderating tonic action of the sympathetic fibres proceeding to the sudoriparous glands produce corresponding effects in the activity of the secretory work of these glands, a work which increases when the same action of the sympathetic fibres is relaxed. If the curb be tightened, that is, if the great sympathetic be excited, the secretion stops. If the check be relaxed or abolished, as, for instance, by cutting the great sympathetic, the sudoral secretion is increased. The action of jaborandi and of atropia are actions of that nature; jaborandi acts by paralysing the sympathetic fibres, which innervate the sudoriparous glands; the sulphate of atropia stops the perspiration by exciting these fibres.

M. Vulpian does not here bring into question the cutaneous vascular modifications which may be produced by division and excitation of the sympathetic or the action of the two substances, the effects of which it is sought to explain, for probably these modifications do not here play any essential part. In the first instance, congestion of the skin without concomitant sweats is often observed. M. Vulpian contents himself by citing the congestion of the face and that presented by the skin of all parts of the body in certain cases of febrile affections, such as pulmonary phlegmasiæ and typhoid fever, and the period when exanthematic pyrexia make their appearance. In these cases, as we know, the skin of the congested regions is quite dry. The same thing occurs in the hot stage of intermittent fever. If this hot period be compared with the third stage of marsh-fever, it will be seen that in this last period the skin is generally less congested than in the hot period; and, nevertheless, the sudoriparous glands are in an active secreting condition. It may also be added that, in the human subject submitted to the action of atropia the integuments are rather congested than anæmic, although that toxic agent prevents all sudoral secretion during a certain period. Here are satisfactory arguments to prove that the hyperhidrosis produced by jaborandi is not due to the action of that substance on the cutaneous vessels. It is true that it might be supposed that the congestion does not take place throughout the whole thickness and extent of the cutaneous integument, and that there is only increased depletion of the vessels of the glomeruli of the sudoriparous glands. But this is a supposition which nothing justifies; and even if it had any foundation, M. Vulpian thinks there is no ground for attributing the increased secretion of sweat to that congestion of the vessels of the sudoriparous glomeruli, induced by the absorption of the active principles of jaborandi, for the researches which have been made into the action of the other glands have shown in the clearest way that the sanguineous afflux, which takes place in these organs at the moment of the functional erethism, is only an adjuvant condition. The principal and essential part belongs to the modifications of the physiological action of the secretory elements themselves, and these modifications are most generally effected under the influence of a change supervening in the activity of the nerve-fibres, which are in more or less direct relation with the secretory elements. A more complex state of things occurs in the salivary glands. The submaxillary gland, which M. Vulpian takes as a type, receives numerous filaments proceeding from the great sympathetic, but it is also innervated by the fibres which spring from the chorda tympani. The sudoriparous glands do not possess any analo-

gous filaments; at least up to the present nothing of the kind has been discovered. The salivary glands may, however, be considered as presenting, up to a certain point, a similar physiological condition to that which has been noted in the sudoriparous glands. The submaxillary gland may be considered as tending to secrete in an uninterrupted manner. The fibres of the sympathetic filaments which go to that gland act on it as physiological curbs. These fibres are in a state of continuous activity, and feed the secretory action of the cells of the glandular *culs-de-sac* in a persistent manner. The proof of this fact is, that the almost complete destruction of all the nerve-elements which are in relation with this gland are followed by an incessant flow of saliva. If the filaments of the sympathetic which proceed to the gland be cut, a slight increase of the salivary secretion is produced; but this increase is very slight, because these filaments, before penetrating into the gland and into the gland itself, place themselves in relation with numerous ganglionic cells, which may further keep up their state of tonic activity, and consequently their restraining action. This tonic activity can only be paralysed by the medium of the chorda tympani. The filament furnished by the chorda tympani to the submaxillary gland is, so to speak, a perfecting nerve. It is intended to act on the nerve-cells situated on the line of the sympathetic fibres which distribute themselves to the gland, and when it is excited it paralyses the inhibitory action of these cells. Immediately on this the gland, restored to functional independence, sets to work, and a continuous salivary secretion is produced.

The effect produced on the sympathetic fibres by the excitement of the chorda tympani may still manifest itself if a substance introduced into the circulation paralyses either the nerve-cells which have just been spoken of, or the peripheric extremities themselves of the sympathetic fibres which innervate the gland. And this is precisely the manner in which *jaborandi* may be supposed to act. *Jaborandi*, according to this view, would paralyse the peripheric extremities of the fibres furnished to the submaxillary gland by the great sympathetic. The inhibitory action of these fibres ceases under its influence, and the gland, having recovered its independence, acts; that is to say, secretes continuously. The atropia acts in a reverse way—draws the curb tighter, excites the peripheric extremities of these sympathetic fibres, and increases their inhibitory action; the check is thus strongly tightened, and the secreting activity of the gland is forcibly restrained. A common conclusion is therefore arrived at as to the manner in which both the salivary and sudoriparous glands are acted upon by *jaborandi*. However, M. Vulpian thinks that too much importance ought not to be attached to these views. They are, he thinks, hypotheses which are not unlikely to be true, but to which the stamp of direct experiment is wanting.

(To be continued.)

HUGHLINGS JACKSON ON DIFFICULTIES IN THE DIAGNOSIS OF THE CAUSES OF APOPLEXY.

The following remarks are reprinted from the Hospital Reports of the *Medical Times and Gazette* for May 7. They appeared before the recent 'police cases' of apoplexy occurred.

In his article on Apoplexy (Reynolds's *System of Medicine*, vol. ii. second edition), Dr. Hughlings Jackson insists that it may be not only difficult, but impossible, to tell whether a patient's apoplexy be owing to alcohol or to some far graver cause. (As implied in this sentence, the term apoplexy is not used in these remarks as synonymous with cerebral hæmorrhage. Large cerebral hæmorrhage is only one of several causes of apoplexy.) What is meant is, that it is often impossible to make a diagnosis in the scientific sense of the word. It is not asserted that we should often be wrong by mere routine guessing, aided by superficial examination. No doubt the police are nearly always right in their so-called diagnosis of drunkenness. The following is an illustration of the difficulty in diagnosis. It is true that there was no difficulty in declaring correctly that the man was dead drunk; that 'diagnosis' had been made by the men who brought him to the hospital, for it was known that he had swallowed a vast quantity of intoxicating liquor. But from the symptoms (supposing, for example, the man had been found lying comatose on the pavement), a diagnosis in the real sense of the word would not have been easy.

H. M., aged twenty-one, was admitted comatose at 7 P.M., October 17. For the notes of his case we are indebted to Mr. Lewis Mackenzie. The patient had passed both fæces and urine in his trousers before admission. This is considered by some medical men to be valuable evidence in favour of drunkenness and against cerebral hæmorrhage as a cause of apoplexy. But, although a help, it, like the smell of drink, is not to be trusted. Besides other reasons for not trusting the smell of drink (strong in this case), we know that drunken men in apparently trivial falls suffer hæmorrhage into the arachnoid 'cavity.' The patient was universally powerless and profoundly unconscious. Had it been possible to rouse him in part—as, for example, to resist examination, or to swear, or even to put out his tongue—there would have been no evidence of decisive value towards the diagnosis of drunkenness. It is not true that patients fatally ill from cerebral hæmorrhage cannot be roused to some extent; sometimes they can be roused. It is perfectly certain that such things as we have mentioned are done by those who are fatally ill from intracranial hæmorrhage. Moreover, certain elaborate actions are gone through by some patients fatally ill from intracranial hæmorrhage. For example, a patient who died in a few hours of cerebral hæmorrhage was seen by Dr. Sutton, Mr. Lewis Mackenzie, and other good observers, to twirl his moustache frequently. More recently, a patient, two hours and a half before he died of enormous cerebral hæmorrhage, tried to button his brace with his left hand, and succeeded in doing it in about a minute. He nodded and shook his head when told to do so, although after a long interval; half an hour later he was deeply comatose, and could not be roused. Some patients with fatal meningeal hæmorrhage are very uproarious. In cases of cerebral hæmorrhage there are seen all degrees from confusion of thought to deepest coma; there are cases in which, as the phrase goes, the patient is 'perfectly conscious.' This is not *à priori* remarkable, as there are all sizes of clots, from that of a pea or less upwards.

To return to our case. The patient's pupils were minutely contracted to the size of a pin's head. This is not a mere routine expression. The reporter of

the case is fully aware that in many cases of apoplexy the pupils cannot be said to be either contracted or dilated. Extreme contraction of the pupils most often occurs in hæmorrhage into the pons. It is, however, only the sign of a very grave lesion in any part of the encephalon. (In the 'gravity' of a lesion there are two factors: size—quantity destroyed; and suddenness—rapidity of destruction). It is most important to note that the state of the pupils varies very much with the temporary condition of a comatose patient. Thus it often happens that if we disturb a patient, comatose from many causes, if not from any cause, his pupils if contracted will dilate. Hence two observers must differ in their reports, if one examine the pupils first of all, and the other after the necessary disturbance of the patient to ascertain if any of his limbs are paralysed, etc. In this case Mr. Mackenzie noticed that 'pulling the ear and hair of the left side dilated both pupils, and that at the same time the face became flushed.'

The pulse was eighty-four, irregular, and at times intermittent. This is a common kind of pulse in cases of severe cerebral hæmorrhage. The skin was dry and cold, the hands, feet, and tips of ears, and nose especially so. Two thermometers were used. The temperature was taken in each axilla; the reading was 96°. The thermometers were kept in a quarter of an hour. Perhaps even this time was not long enough. In cases of cerebral disease with a probability of a low or a normal temperature, the thermometers should be kept in a long time. As to the diagnostic value of the temperature, we may find a low temperature soon after an attack of cerebral hæmorrhage; later the temperature rises above normal. The patient's respirations were abnormal in character. The upper part of the chest rose when the epigastrium sank.

After pinching, the respirations were accelerated, irregular, and jerking. There was some dullness at both bases, at the left especially. The patient coughed incessantly at times, but did not seem able to raise phlegm for a long time, and consequently became very livid in the face. Sonorous rhonchi were heard all over the front of the chest.

The urine was acid, of specific gravity 1.006, and contained no albumen.

The optic discs were normal, except that the large veins were much distended. They were black and round, and after the comatose stage it was noted that they showed the 'light streak.' Probably they would have showed it during the stage of coma. This condition of the discs may be found in cases of cerebral hæmorrhage, but often there is in such cases no obvious alteration in the fundus of any kind.

It was noticed by Mr. Lewis Mackenzie in this and in some other cases of alcoholic poisoning, that the eyes were divergent during the stage of coma. In a subsequent case of alcoholic poisoning, this was observed by Dr. Hughlings Jackson; but the divergence is not diagnostic of apoplexy from alcohol, for the eyes were noted as divergent in the case of fatal cerebral hæmorrhage alluded to earlier in these remarks (the man who buttoned his brace).

Next morning the patient's temperature was 101°, and so in the evening. He recovered rapidly. Dr. Hughlings Jackson has only seen two deaths from acute alcoholic poisoning. The patients nearly always recover, however deep the coma may seem to be.

CHIENE AND COOPER FORSTER ON BLOODLESS OPERATIONS.

As the expression of almost diametrically opposite opinions on Esmarch's method of bloodless operating, the recently published remarks of Mr. Chiene in the *Edinburgh Medical Journal* for April, and of Mr. Cooper Forster in the just issued twentieth volume of the *Guy's Hospital Reports*, are worthy of notice.

Mr. Chiene observes that the thoroughness of action of the elastic bandage is the chief objection to its use; the smaller arteries being so completely emptied that natural arrest of hæmorrhage by the formation of external clot during the operation cannot take place. As a consequence, when the compressing agent is removed, many vessels bleed which would have been otherwise closed; and before the surgeon has time to secure them by ligature, much blood is lost, and the operation is unnecessarily prolonged. The complete anæmia of the limb takes away that guide which oozing of blood gives to the situation of the smaller arteries, which cannot, therefore, be tied until the circulation is restored. And when it is restored every small artery bleeds freely, and leads to further loss of blood. Mr. Chiene considers the plan of simply raising the limb to be preferred, because it is not so complete; a gentle oozing as a guide to the smaller arteries is not prevented, and enough blood is left to allow external clot to form. In cases where there are putrefaction-products in the limb, the compression of the bandage is hurtful, and here, again, raising the limb is to be preferred. He objects to the elastic tubing that it does not allow of being relaxed and tightened at the pleasure of the operator, a serious obstacle in private practice where the number of assistants may be limited; and he would rather use Petit's tourniquet than the band of Esmarch. While Mr. Chiene regards the new method of operating as no improvement in surgery, Mr. Cooper Forster, on the other hand, is much in favour of the practice; for from his experience the advantages of Esmarch's method appear to be numerous, and the ill-effects are hardly appreciable. He supports this view by the considerations: firstly, that the surgeon is enabled to see what he is about, an important thing in the exploration of doubtful tumours of the limbs; and secondly, that a certain quantity of blood is saved for the patient, which he thinks to be always of advantage, notwithstanding the opinion of some that an active and plethoric circulation favours inflammatory change and excites surgical fever. He holds that loss of blood means lowered vitality and slow repair, feeble resistance to any putrefactive change that may arise, rapid absorption of such products when formed, and increased chances of pyæmia; and, accordingly, any method of saving blood seems to him an unmitigated good. Mr. Forster denies the force of the objection that the bloodlessness of the operation leads to want of care in the use of the knife, remarking that in the removal of limbs the incisions are made after recognised methods, the main vessels are at once secured, and while the smaller vessels never trouble much, the mere oozing from paralysed capillaries is so easily arrested that it cannot for a moment be imagined to be harmful. He sees a danger in the squeezing out of putrid matters, but with caution

this can be guarded against; and if other things are greatly in favour of the method, it should not influence us much.

HERBERT PAGE.

FRESH EXPERIENCES OF THE OPERATION OF THE WATERS OF NAUHEIM ON RHEUMATISM OF THE JOINTS, AND THE ACCOMPANYING AFFECTIONS OF THE HEART. BY DR. BENEKE.*

Since I wrote my pamphlet on this subject in 1872, I have treated forty-five cases of rheumatism of the joints associated with heart-affection, and eight cases of acute rheumatism of the joints with no heart-affection. Several also of the cases treated before 1872 returned to Nauheim for further treatment.

As to the chief questions, the quieting the action of the heart by baths of the temperature of 88° to 93° of our waters (which contain 2 to 3 per cent. of solids, chiefly common salt, and a little carbonic acid), and as to the disappearance of exudations into the joints, I consider it scarcely necessary to re-discuss two such well-established facts. But I shall give an account of a remarkable case of heart-disease, as an example of the first fact.

The patient, aged forty-one, had an attack of rheumatism ten years ago, and one for three successive seasons afterwards. He had not had an attack for six years, but for four years had had a most distressing affection of the heart, the exact date of the origin of which was not known. The patient was cyanotic, and suffered from dyspnoea; had troublesome cough with œdema of the lungs; his urine was highly albuminous. The hands, feet, and face were usually very cold; the points of the fingers and nails bluish. Going up stairs was very difficult. His pulse was very irregular. The heart was slightly hypertrophied. There was distinct insufficiency of the mitral valve with stenosis of the corresponding aperture.

The patient commenced by drinking the Kurbrunnen diluted. He took his first bath, lasting ten minutes, of the strength of $2\frac{1}{2}$ per cent., at a temperature of $90\frac{1}{2}^{\circ}$. The pulse at once became slower, and more regular in the bath, and the patient declared himself more comfortable. These baths and the drinking were continued with intervals of rest, and the improvement went on: the dyspnoea and the cough especially were relieved, the pulse was quieter, and the patient on July 7 remarked that, if he did not go away, there would be nothing to cure next season. The patient left on July 22, after having had altogether twenty-five baths. He wrote in August an encouraging account of himself, but his urine remained highly albuminous. The amount of albumen rather increased than diminished during his bathing. This, case, nevertheless, illustrates well the quieting effect of the baths on the heart, under the most unfavourable circumstances.

I am glad to find that Röhrig agrees with me, and says that baths of a temperature of 86° to 93° , of middling strength and used for a moderate time, can be borne without the slightest excitement of the vascular system, and further that such baths have a soothing and refreshing effect upon the patient, and usually cause a very distinct retardation of the pulse (10 to 35 beats), and these effects are much more marked in baths of salt than of plain water.

I think it right to mention one exception to the above results, in the case of a lad sixteen and a half years old; but he was in a wretchedly anæmic state, had previously suffered from effusion into both pleural cavities. Besides mitral insufficiency with stenosis, there is little doubt that there was adhesion between the heart and pericardium, and between the pericardium and pleura. In this single case the frequency of the pulse not only was not diminished, but was distinctly increased by the bath. Even this single case is sufficient to show, that the operation of the bath on the pulse should be carefully observed when it is first used.

As regards the next point, or the disappearance of joint-exudations, the efficacy of the waters was proved over and over again; but I must say that this was displayed far more in cases of recent acute attacks, than in the chronic form of arthritis deformans.

In the first class of cases, the exudations often disappear after a few days; and this is a most striking effect of the Nauheim waters. The general treatment is, the use of baths of 88° to 93° temperature, and the daily drinking of fifteen to twenty-four ounces of the diluted Kurbrunnen. It may be said that such recent cases get well of themselves, but they undoubtedly do so much faster under this treatment. Perhaps the greatest virtue of the Nauheim treatment consists in its preventing in a great measure the occurrence of relapses. Of this I am able to speak positively from the experience of many years in particular cases. On the whole, the treatment appears to diminish the susceptibility to catch cold, and patients indicate this by frequently remarking that 'their skin has grown stronger.'

I must, however, say, that as I consider that the alteration of the constitution of the blood is a material part of the treatment, I endeavour to maintain it in patients after they have returned home. I recommend the diminished use of albuminates, the exclusion of eggs, a large consumption of fresh vegetables and of light wine, and I make the patient drink every morning six or eight ounces of a solution of about 1 per cent. of common salt. I thus diminish the amount of albumen and of phosphates in the blood, and increase the alkaliescence of the serum of the blood. The patient must guard against sudden exposure to cold. With such aids he is pretty secure from relapses.

A fourth point to which I would draw attention, is the continued improvement of the circulation and the great amelioration of the general condition, which follow bath-treatment; no doubt such results occur without any bath-treatment. But I do not think I am mistaken in believing that the latter treatment has special advantages, and I could enumerate a whole list of patients whose continued improvement could not have been effected by any other mode of practice known up to the present date.

A fifth point, to which I alluded slightly in my pamphlet, I can now affirm more positively. This is the disappearance of recent endocarditic effusions on the valves of the heart, as a consequence of bath-treatment. I have only had three such recent cases. But the general condition has been wonderfully improved in all; and in one, a girl, the heart-affection seems to be almost entirely removed. On the whole, I am of opinion, that rheumatic patients, in whom heart-disease has been developed, cannot be sent too early to Nauheim.

* *Berliner Klinische Wochenschrift*, nos. 9 and 10.

I have only a few words more to say as to the diet of patients. It is so important that, although I have shortly alluded to it above, I must return to the subject.

One mode of dietetic treatment is by no means applicable to all cases of rheumatism. In it, as in other constitutional diseases there is much variety in the constitution of the blood and of the humours. The appearance itself of the patients would imply this. While one class are pale, another are of a fresh healthy hue. One set are lean and haggard, while another are well nourished and even fat. Nevertheless a few general changes, which have been made out, occur in most rheumatic patients. These deviations consist in a relatively small amount of water, and relatively too great amount of nitrogenous compounds, on the one hand, and, on the other hand, in a relative poverty in alkaline bases, especially in potash, and, as a consequence of this, in an excess of free acids, organic and inorganic. Granting these principles, it follows, as a pretty general rule, that rheumatic patients should consume but a small amount of nitrogenous or of albuminous food, and eat fresh vegetables rich in potash salts. But, as by the deprivation of animal food the patient loses a certain amount of stimulation, I allow him some light wine and black tea. Patients who are not fat may drink beer; but they must not use Liebig's meat-extract, on account of its richness in phosphates. I must observe that the great majority of sufferers from heart-complaint bear well small doses of beer or wine. When this is not the case, I use the gentle stimulus of small doses of quinine. But, although these are the general principles in dieting rheumatic patients, they have to be constantly modified, according to individual peculiarities. For instance, in the case of rheumatic children of scrofulous constitution, large quantities of meat are a necessity, as well as fresh vegetables.

It is high time that some such principles should be applied to the treatment of rheumatism, so as to place it on a more rational footing, and that this regulated diet should not be confined merely to the period of a bath-cure.

Still more necessary is such systematic regulation of diet in chronic forms of rheumatism, and especially in arthritis deformans. The general principles laid down above apply to it also. But there are marked differences between it and simple acute arthritic rheumatism. In it the nervous system is more deeply engaged than in the other. The general want of power of resistance, the great irritability of temper, the tendency to get sudden acute attacks of local inflammation, the extreme sensibility to changes of atmospheric pressure or of temperature, all distinguish it from the other form; I regret that we have no more precise knowledge of the nature of the affection of the nervous system in it. But it is certain that patients of this class, undergoing bath treatment, require baths of the higher temperature of 97° to 100°. It is also certain that the chloride of sodium waters are of much less importance in the treatment of this form than of the sequelæ of the acute forms of rheumatism. It is also almost always the case that arthritis deformans requires tonic as well as alterative treatment. That here, too, a deficiency of potash in the fluids plays a great part in the causation of the disease, I have no doubt. The deposits of uric acid in the joints, and the sediments of uric acid and of urates in the urine, seem to point

to something more than a mere pathological excess of uric acid in the system. But how much have we still to learn concerning this and other constitutional affections!

J. MACPHERSON, M.D.

ANATOMY AND PHYSIOLOGY.

RANSOME ON THE GRAPHICAL REPRESENTATION OF THE MOVEMENTS OF THE CHEST-WALL IN RESPIRATION, AND ON THE POSITION OF THE HEART'S IMPULSE IN DIFFERENT POSTURES OF THE BODY.—In this paper, Dr. A. Ransome describes and comments on the tracings of the movements of the ends of the ribs in respiration.

To take these tracings he has constructed a stethograph. This consists of a lever of the first order, connected at one end by a ball-and-socket joint with a pad. This fits upon the rib; at the other is a marking-pencil. The fulcrum is a pin, passing through the centre of the lever, fixing it to a vertical frame, so that its only movement is up and down. The vertical frame itself fits into another, so that it can move backwards and forwards. To this second frame is attached the writing-frame, against which the point of the pencil presses lightly. This apparatus is lodged by a pivot on a stand, allowing free rotatory movement. Thus the pad is kept in position against the rib, and forward and upward movements and the reverse are traced by the point of the pencil.

The tracings show what was before gathered from observations with the three-plane stethometer: that the forward is the most regular movement; that in man the upward movement takes place chiefly towards the end of inspiration, this irregularity being much less in women and children.

Moreover, the rib does not descend in the same course as it ascends, the tracing of the end of a rib forming a more or less irregular figure inclosing a space. Hence Dr. Ransome argues that the rib does not move as a rigid body, but that its chord-length is altered by the contraction of the respiratory muscles.

He finds that the relation of the upward and forward movements can be voluntarily altered to such an extent as to leave small doubt of the bending of the rib.

Interesting variations in coughing and sneezing are given; and others, taken during disease, make it probable that such tracings will be of considerable pathological importance.

Dr. Ransome, in his paper on the position of the heart's impulse in different postures of the body, takes the measurements of Mr. W. A. Patchett on fifty-one patients.

A full table is given of each case, the length of the sternum, the position of the nipple, with regard to two ordinates, one the central line of the sternum, and the other a line at right angles to this; the position of the maximum impulse of the heart-beat with regard to the same two ordinates in four positions of the body, viz., on the back, upright, on the left side, on the right side.

Various other particulars are also given, as age and disease of the patients.

From the table Dr. Ransome draws the conclusion, that the position of the heart's impulse-site with regard to the nipple varies considerably, thus from immediately under it to one and a half nearer the median line.

It may be noticed that the length of the sternum has no constant relation to the size of the other parts of the thorax, nor have the mammæ a constant relative position.

The impulse-site varies considerably with different postures of the body.

The difference in its position is greater in the change of posture from side to side than from up-right to lying down.

In many cases the latter change made no difference in the level; in some the level fell on standing up; this was apparently unaffected by the size of the individual. As a rule the impulse-site moved slightly to the left on rising.

The mean extent of its movement along the ordinate at right angles to the sternum, in changing position from the right to the left side, in the thirty-nine cases observed, was three inches and three quarters; the maximum was five inches and three quarters; the minimum two inches.

In the majority of cases this movement increased in degree with the length of the sternum.

J. N. LANGLEY.

MUSCULUS AND DE MERMÉ ON A NEW BODY FOUND IN THE URINE AFTER THE INGESTION OF CHLORAL HYDRATE.—MM. Musculus and De Mermé (*Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences*, no. 14, April 12, 1875) state that foreign substances introduced into the human organism are rejected in states which may be divided into three groups. 1. Bodies which pass unaltered through the system, such as creatin, acetamid, etc., and are found unchanged in the urine. 2. Bodies which are decomposed, and whose decomposition products are found in the blood, the saliva, and the urine, such as leucin and glycocoll, which yield urea. 3. Bodies which combine chemically with some product of the organism, and thus pass into the urine. The type of this group is benzoic acid, which combines with glycocoll, and is eliminated as hippuric acid. In the urine of dogs poisoned with chloral hydrate, Feltz and Ritter have recently discovered chloral, sugar, and another organic substance precipitable by the basic acetate of lead. It is an acid which forms stellar groups of crystals resembling those of tyrosin, and containing carbon, 31.60; hydrogen, 4.36; chlorine, 26.70. It is not expelled from its salts by acetic acid. At the boiling point it reduces alkaline solutions of copper and bismuth, and salts of silver, and decolorises sulphate of indigo. It turns the plane of polarisation to the left. The authors hold that chloral should rank in the third group with benzoic acid, and propose for the acid found the provisional name of urochloralic.

PATHOLOGY.

DURET ON THE CIRCULATION OF THE BRAIN.—M. Duret (*Archives de Physiologie Normale et Pathologique*, Nov. and Dec., 1874,) writes to the following effect.

It may be seen at once, without having recourse to the microscope, what are those affections of the brain in which we find softening of the hemisphere over a space of greater or less extent, but in which it is impossible to establish its precise relation to a known arterial region. Certain soft gliomata of the brain present the same kind of independence. Some

softenings are found to be absolutely limited to the ganglia of the cerebrum—the corpora striata or the optic thalami; others, and these in greater number, affect the convolutions and the subjacent white substance. Softening of the cerebral peduncles, of the pons, of the medulla oblongata and cerebellum is made a subject of especial study.

Softening of the Corpus Striatum.—All the nutrient arteries of the corpus striatum take their origin from the first three continuations of the Sylvian artery, and ascend perpendicularly into its substance. They form no anastomoses with arteries of the peripheral regions, and it is this circumstance which leads one *à priori* to imagine the existence of softening involving only the whole of the corpus striatum. On the other hand, each of the arteries of this body communicates but very imperfectly with its neighbour (which is limited to the external part of this body), and in reference to this peculiarity, the author points to softenings which affect only certain portions of the corpus striatum.

But a difficulty presents itself; how can softening affect the whole of the corpus striatum, without involving the convolutions to which the branches of the Sylvian artery are distributed? Two hypotheses may be possible; either the embolism, situated at the superior wall of the trunk of the Sylvian artery, at the point where it gives off the arteries of the corpus striatum, obliterates them, and allows a sufficient quantity of blood to pass for the nutrition of the convolutions; or the peripheral anastomoses of the Sylvian artery suffice to restore the current of blood.

According to the author's investigations, the peripheral anastomoses of the convolutions are incapable of fulfilling this function, unless they have already been progressively dilated; moreover, numerous observations have shown that, if the plug of embolism be situated beyond the arteries of the corpus striatum, the cortical region of the Sylvian artery is the seat of a well-marked softening. The first hypothesis, therefore, is the only one that is admissible. Sometimes at the necropsy there is found an old plug, above which there has formed, during the last moments of life, a recent deposit of blood which has completed the obliteration of the calibre of the artery, but has had no influence over the extent of the softened region.

MM. Prévost and Cotard have reported the following case. In the right hemisphere there was an area of softening about the size of a large nut, and occupying the whole thickness of the corpus striatum, except a small portion anteriorly; on the outer side this softening extended as far as the grey substance of the convolutions of the insula, which was unaffected; and behind, it extended beyond the level of the anterior border of the optic thalamus, which was also healthy. The clot extended as far as the divisions of the Sylvian artery, adhering to its wall, but having a certain friability.

It is not uncommon to find the corpus striatum the seat of a softening, which involves at the same time the convolutions which are nourished by the Sylvian artery; in such cases there is complete obliteration of this artery.

Optic Thalamus.—This body is very often the seat of empty spaces, or cavities, which are due to obliterations by small embolisms of the very small thromboses of the branches supplied by the choroidean arteries, or the terminal branches of the ophthalmic arteries.

Cerebral Ventricles.—In these cavities many kinds of softening are found. 1. Hollow places and yellow patches, or little areas of softening. They occupy either the corpus striatum, the optic thalamus, or the roof of the corpus callosum. They are produced by obliteration of either the small arterial branches in the neighbourhood of the ventricular walls, the terminal branches of the arteries of the corpus striatum and of the optic thalamus, the perforating branches of the choroidean arteries, or branches of the artery of the corpus callosum, or of the pillars of the fornix.

2. Complete softening of the walls of the ventricles, of the roof of the corpus callosum, of the fornix, commissures, etc. The vessels which supply the ventricular walls are ramifications of the choroidean arteries. These arise from the Sylvian and from the posterior cerebral. It is not, therefore, surprising to find them obliterated by a meningeal exudation or by a mass of tubercular granulations which surround the origin of the Sylvian or the posterior cerebral arteries.

J. LOCKHART CLARKE, M.D.

BRYAN ON A CASE OF UNILATERAL SWEATING OF THE HEAD.—Some cases of unilateral hyperidrosis are quoted by M. Vulpian, in reference to the influence of the nervous system on the sudoriparous glands, in the section of his *Studies on the Physiological Action of Toxic and Medicinal Substances*, published in the LONDON MEDICAL RECORD for June 23.

The case of a similar character communicated by Dr. Alonzo Bryan to the *Clinic* of June 5 is interesting as a further contribution to the study of the physiological problem enlarged upon by M. Vulpian. Dr. Bryan prefaces his case by the following remarks.

Only a few cases of unilateral sweating of the head have been observed, and, it appears, not with the care which their rareness would seem to demand. Dr. Bartholow, I believe, has reported several instances of the affection to the New York Neurological Society. The affection in question is generally regarded as being due to a pathological state of the thoracic or cervical portion of the sympathetic nerve. Intrathoracic tumours (aneurism, etc.), from the pressure which they may make upon the sympathetic, have been supposed to play an important part in the production of this affection.

The original notes of the case which I present were made nearly a year ago; and I draw from them as follows.

June 27, 1874.—Mrs. M. J. C. has unilateral sweating of the head. To day I saw her, when the temperature of the room was 92° Fahr. The parts of the head and face to the right of the median line were sweating freely. The parts to the left were ordinarily moist, as is the skin during a state of common insensible perspiration. The temperature of the right and left temples differed to the extent of 1½° Fahr., under the following circumstances: A good medical thermometer was pressed upon the left temple a little back of the external angle of the eye (by applying over the bulb of the instrument, for the purpose of excluding the atmosphere, very thick folds of woollen flannel), and the temperature was found to be 98½° Fahr. At the corresponding spot on the opposite or sweating side the temperature was 97¼°. When the bulb was not covered in by flannel in the still atmosphere the relative dif-

ference of temperature was the same. The temperature at the bend of each elbow, with the arm flexed so as to cover in the bulb of the thermometer, was on each side alike, 99½° (the person had been taking active exercise). Within the mouth, on both sides, the temperature was uniform, exactly 100°. The touch, sensibility, and motility were uniform and perfect. The two radial pulses were alike; when the patient was sitting against the back of a common chair eighty-eight pulsations in the minute. The sudoriferous glands only were more active on the one side. The sweating extended very slightly to the left of the median line of the mouth and chin; but the median line of the forehead and nose was an exact line of demarcation. The difference of sweating did not extend below the head and face.

Only two pathological states could be ascertained to exist—unilateral neuralgia of the face and head, and psoriasis; the latter occurring in spots on the head and extremities. Contrary to what I had expected, the neuralgia was upon the right side, *i.e.*, the sweating side. This latter point, to my surprise, I recently ascertained. I presume that in this case the functions of the affected sympathetic filaments are rather exalted instead of being depressed. It should be observed, though, that the transudation of perspiration seemed to be held in abeyance on the side unaffected with neuralgia. On the neuralgic side the degree of perspiration seemed to be that which ought normally to have been excited by the temperature to which the person was subject at the time of the examination.

The psoriasis may have been due to nervous influence also.

It may be observed in this case that only one vital action seemed to be interfered with: the transudation of perspiration. Touch, sensibility, and motility were uniform and perfect upon the two sides. The special senses were perfect. The chemical and organic changes in the tissues did not seem to be retarded or hastened, as the temperature within the mouth was the same on either side, 100°. The difference of temperature of the two sides, externally, was doubtless owing to the difference of the cutaneous evaporation.

MEDICINE.

SOUPLIER ON A CASE OF HEMIANÆSTHESIA, WITH CROSSED PARALYSIS.—Dr. Soulier records the following case (*Journal Médical de Lyon*, May 30, 1875).

C. L., a dyer, aged forty-three, had during his early life enjoyed average health, free from any morbid hereditary predisposition; his family history was good, and himself of temperate habits, and free from syphilitic disease. The origin of his malady dates back to 1856, when, being in military service, he suffered from a fall of his horse, under which he lay stunned. On his being released, it was found, on the return of consciousness, that the limbs on the left side, and the right side of his face, were paralysed. The insensibility had lasted two days. There was a depression on the right temple, inability to speak, and strabismus with diplopia of the right eye. The left half of the body had lost its sensibility. Crossed paralysis (*paralysie alterne*) declared itself gradually during the first fifteen days, then remained stationary for four months. The patient was then sent to Bourbonne-les-Bains, where

he remained until September of 1856. By the use of these waters his condition so far improved that, at the end of about ten months, he could walk without support. He remained thus until September, 1873, engaged in various employments.

In the autumn of each year he suffered from attacks of the head, giddiness, and stiffness of the left side, lasting for about ten minutes at a time. From 1865 his memory began to fail; and then his mind became so confused that he could not attend to any business. In 1873, however, these last symptoms passed away. At the time of his admission into the hospital, March, 1873, he was the subject of malaise, vertigo, etc.; he had facial paralysis on the right side, and diminution of muscular power on the left side of the body. The saliva ran from the right side of his mouth. In September of the same year he suffered another attack, which augmented all the previous symptoms. In October, 1874, his general health was good; but the facial paralysis was persistent, as was also the impairment of the muscular power on the left side.

The most striking symptoms were those furnished by the cutaneous tactile sensibility, which was but slightly diminished on the left side, whilst there was complete anaesthesia as to pain or heat, both of the skin and of the mucous membranes, conjunctival, nasal, buccal, lingual, etc. This anaesthesia ceased exactly at the middle line of the body, except on the cornea of the left eye, which retained its sensibility, owing to its special innervation.

Electrical sensibility was diminished on the left side. The senses of taste and smell were lost on the left side of the tongue. Sight was impaired on the right side; the pupils were equal; there was almost total loss of accommodation in the two eyes, but there was no change perceptible in the interior of the globe of the eye. Hearing remained unimpaired. Subjectively, the patient experienced sensations of cold with changes of weather, and gyratory vertigo on lying down to sleep at night and on waking in the morning.

All these symptoms, observes M. Soulier, point to a lesion of the right side of the pons, and give rise to reflections upon the great question of the day, viz., the localisation of cerebral lesions. If we trace in their ascending course the fibres which constitute the peduncles of the brain, we observe them leaving within and behind them the optic laminae, spreading out and forming on each side between the two centres of the corpora striata the 'double semicircular centre' of Vieussens, the 'internal capsule' of Burdach; then disengaged from the two grey nuclei of the corpora striata, the fibres of these laminae spread out in all directions, forming the 'couronne rayonnante' of Reil. The point then affected in these cases of permanent hemi-anaesthesia, of cerebral origin, is the posterior and superior portion of the internal capsule, *i.e.*, the foot of the 'radiating crown.'

Moreover, it is an important fact, that M. Veysière produced the same condition of anaesthesia by the injection of a destructive fluid into the part under consideration. This point of localisation is evidently not a centre; it is a strait, a pedicle through which the centripetal fibres of special and general sensibility pass. The knowledge of this fact may serve as a guide in our researches after the centres of sensibility.

The phenomena in the case now related, M. Soulier adds, lend countenance to the theory of M. Vulpian, which places the centre of sensitive impressions in the

pons and the peduncles. Certain structural conditions may ultimately explain the ordinary seat of the lesion of hemi-anaesthesia; but, since the conducting fibres are implicated, it may be imagined that there may be injury to another point also. The insensibility to pain and heat, while the tactile sensibility remained perfect, had an hysterical aspect. The simultaneous existence of paralysis of taste and smell was in accordance with the views of Brillat-Savarin, to the effect that these two senses are fundamentally one; the decussation then of the olfactory nerves is thus both possible and probable.

W. B. KESTEVEN, M.D.

MILLIKEN ON DROPSY.—In the *Cincinnati Lancet and Observer*, for June, Dr. D. Milliken writes:—Dropsy may be defined: A morbid extravasation or transudation of water from the blood, with more or less of the constituents of blood-serum, into the cavities and areolar tissue of the body. This morbid transudation might occur in two conceivable ways: that is, either by reason of a morbid permeability of the vessel-walls; or, on the other hand, by reason of a morbid change in the blood, whereby its natural power or tendency to permeate the vessel-walls is exalted. Of such a morbid change in the vessels nothing is positively known, though it has been asserted that paresis of the capillaries is an invariable precedent event in every dropsy, general or local. But it is very certainly known that morbid changes in the blood bring about the dropsical effusion, and with these we have now to do.

There are two highly distinct abnormal conditions of the blood—one physical, the other chemical, and both tending to dropsy. The blood is liable to an increase of tension in the veins and capillaries; or it is, in the second place, liable to a change of chemical composition.

Abnormal tension of the blood, in a degree sufficient to produce general dropsy, is found only in the veins. The chemical changes in the blood which may cause dropsy result in hydræmia, which term, well defined by its etymology, signifies a watery state of the blood. Now, since the amount of water in the blood-vessels can be very rapidly diminished by drainage through the kidneys, a watery state of the blood would be promptly corrected if it depended on an actual increase of water. The fact is that the increase of water in the blood in hydræmia is not actual, but relative to the amount of solids, and the condition is brought about by the loss of some portion of these solid elements.

After describing the pathology of different forms of dropsy, and giving the most successful plan of tonics and chalybeates, he says: 'While studying the connection of dry and cardiac maladies, it is difficult to suppress a regret that the serum is forced through the capillaries by venous congestion. If the pressure were brought to bear from the arteries, we could easily diminish the vigour of the action of the heart by a selection from the great armoury of sedatives. But, as it is, and since the heart is behindhand with its work in every case, we are compelled to stimulate, and unfortunately the available heart-stimulants are few in number and hard to manage. The ethers and some other stimulants may answer in brief emergencies, but when it is desired to whip up the heart for a long time, we are reduced practically to one medicine—digitalis, "the heart-tonic."

'What is the probable mode of death of dropsical patients, and how shall we treat the crisis? Leaving

out of view a great number who die by asthenia, worn out rather than killed, we observe that nearly all of the remainder perish by the extension of the dropsy to vital organs. They are "drowned in their own fluids." In other words, they die of oedema of the brain or lungs. Treatment in these cases depends very much upon the cause of the dropsy. If hydræmia exists, little more can be done than to give vigour to the heart's action, and favour the brain by position when the brain is involved. It is recommended, also, to ligate the lower extremities and make them reservoirs of blood and serum for the time. If the dropsy is caused only by cardiac disease, and the blood remains of fair quality, we may boldly set to work to diminish the volume of the blood by active purgation, or even by venesection. We may in any case attempt this by diaphoresis and diuresis. If there exist a large collection in the abdomen, so large as to interfere with the play of the diaphragm, and consequently to interfere with the free return of blood from the brain, tapping will relieve the heart and lungs from pressure. The same procedure is of course proper in threatened oedema of the lungs. May we bleed patients who are absolutely dying from pulmonary oedema? We may, even when their blood is impoverished and watery. The operation in such a case is the forlornest sort of a forlorn hope. It should be done when there is not the shadow of a chance of recovery without the venesection, and with the understanding that there is not the ghost of a chance of recovery from a second attack after the venesection.'

ROGERS ON MILK DIET IN TYPHOID FEVER.—Dr. L. R. Rogers, of Albany, sends to the *New York Medical Record* the following account of his management of a severe case of typhoid fever on the milk-diet principle.

'The point to which I wish to call attention is the diet part of the treatment. As soon as I felt sure that the patient was to have a regular "run" of fever, I commenced to give milk—fresh, raw, cow's milk, from one cow, and not more than twelve hours' old at any time. I gave, during the height of the disease, from one and one half to two quarts per day; every hour at first, then every half hour, and for over two weeks every quarter hour, without any water or other food, except a few times when I tried beef-tea and other dietary preparations. The latter, in every instance, raised the pulse and fever, and thickened the fur on the tongue. The patient's bowels gave no trouble, moving by injections once in four or five days, the dejections like those of an infant. Quinine and stimulants made her worse every time when tried, and the severe pain in the back and limbs, which came on every day about 6 P.M., was quieted in ten or fifteen minutes by a mild current of Faradic electricity from the back of the neck to the sacrum or feet, which was continued twenty or thirty minutes.

'This treatment I used for thirty-two consecutive days, giving each time a good night's rest, free from pain, without anything in the shape of opiates. I had the best counsel the county afforded, and the case was considered by all who saw it one of the most severe.

'Small doses of the sulphite of soda were all the medicine she took that did not disagree, and I gave this simply to prevent decomposition in the milk.

'There were many fatal cases in the epidemic, but all who bore milk well recovered. In this case, al-

though she had the nourishment in one and one half to two quarts of the best milk, she continued to get weaker and weaker for over four weeks, which shows very plainly that any other diet would have failed to meet the emergency.

'Milk contains all that is needed to nourish and keep up every part of the system, nearly, and is always the same; while our best dietary mixtures are wanting in many things needed by the economy, and cannot be made twice alike. I have since that time used milk very freely in all stages of various diseases, and have had reason to be well satisfied with it as the best diet, for both adults and children.

'I do not put forth this case as one to copy from in the particular treatment, but simply to show that the best article of diet the world contains, either in disease or in convalescence, and one always obtainable, is too often neglected, and complex dietary compounds used instead. The patient in this instance was confined to the house over eight weeks, and made an excellent recovery. She was thirty-six when it occurred, and is now forty-three, and has never been sick since.'

MINICH ON A CASE OF PURPURA HÆMORRHAGICA IN A CHILD SUCCESSFULLY TREATED BY THE HYPODERMIC INJECTION OF ERGOTIN.—Dr. Andrew K. Minich (*Philadelphia Medical Journal*, May 8) gives an account of a severe case of purpura hæmorrhagica, in a boy seven years old, successfully treated by the hypodermic injection of ergotin in grain doses. Four hours after the first injection the vomiting of blood had entirely ceased, there being only oozing of blood from one nostril. Two more injections were subsequently given, and half-drachm doses of the fluid extract of ergot, with sulphuric acid and opium, every two hours. The child was convalescent, without relapse, on the seventh day. Dr. Minich regards purpura, in its various forms, as separated from scurvy by a broad line of distinction. Arguing from the effects of ergotin in purpura hæmorrhagica, and the physiological action of the drug in producing contraction of the blood-vessels, as shown by experiments on animals and ophthalmoscopic observation of the retinal vessels, Dr. Minich suggests that purpura hæmorrhagica may be a neurosis, *i.e.* a vaso-motor paralysis. This would explain why ergot, which causes vaso-motor spasm, should cure the disease. [The fact that the artificial production of vaso-motor paralysis by section of the sympathetic is not followed by hæmorrhage from the dilated vessels, shows conclusively that this condition alone is not sufficient to account for purpuric extravasation. Even if vaso-motor paralysis be one of the factors concerned in its production, there must be others in addition, such as changes in the vascular wall or in the circulating fluid. If the power of ergot to abate purpuric hæmorrhage should be established, its styptic effect, by causing vascular contraction, would be perfectly intelligible without supposing pre-existing paralytic dilatation.—*Rep.*]

W. B. CHEADLE, M.D.

RECENT PAPERS.

- Mentone in its Climatological and Medical Aspects. By Dr. F. F. Farina. (Paris: O. Doin.)
 Periurethral Urinous Phlegmon consequent on Stricture of the Urethra: Termination by Resolution. (*La France Médicale*, June 16, 1875.)
 Pseudo-Hypertrophic Muscular Paralysis. By Dr. C. T. Poore. (*New York Medical Journal*, June, 1875.)

Case of Bulbar Paralysis, with Hemiatrophy of the Tongue Supervening in the course of Locomotor Ataxy. By M. Cuffer. (*L'Union Médicale*, June 19.)
 A Case of Bonenemia. By Dr. Smith. (*Nashville Journal of Medicine and Surgery*, June, 1875.)
 New Treatment of Cerebral Rheumatism of Rheumatismal Meningitis by Hydrate of Chloral. (*Gazette des Hôpitaux*, June 15.)

SURGERY.

HAKENSCHMID ON STRANGULATED HERNIA WITH PERFORATION.—Dr. Carl Hakenschmid reports a case in which recovery followed perforation of a small strangulated hernia (*Medicinisches Centralblatt*, no. 21, 1875). The patient was a woman, aged thirty-six years, who, for some time before the attack of strangulation, had noticed a small painless and irreducible swelling in the right groin. This had been regarded as an enlarged gland, and treated accordingly. Four years ago the woman was suddenly seized with pain in the abdomen, and became sick and feverish, the bowels at the same time being constipated. Dr. Hakenschmid, on examination of the right groin, found the skin over the swelling somewhat reddened, and the swelling itself painful, and on percussion, quite tympanic. Reduction could not be effected through manipulation. On the following day the symptoms were much more severe; the patient was delirious, and suffered much from abdominal pain and tympanites; there were profuse stercoraceous vomiting with hiccough, coldness of the extremities, and a thready and almost imperceptible pulse. Herniotomy was then performed. After the superficial structures had been divided, a dark-coloured gland was observed, and next, under this, a small congested hernial sac which contained about two drachms of brown and turbid fluid, and a strangulated loop of intestine, about the size of a cherry. The surface of the strangulated intestine was of a very dark colour, and had lost its polish. After division of a tight stricture, there was a sudden discharge of about three ounces of fecal fluid from the orifice of the sac. The upper portion of the wound in the skin was brought together by sutures, and the lower half left open and covered by charpie and a tightly round compress. When next seen, eight hours after the operation, the patient was much better, the bowels having been relieved, and the abdominal pain much diminished. On the fourteenth day, the wound had healed along its upper half, whilst the lower half had contracted to a small fistulous opening, from which there was a constant discharge of fecal fluid. Eight days later the whole wound had closed, but two days afterwards a painful red swelling was suddenly formed in the region of the scar. This soon burst and discharged fecal fluid. The discharge ceased in the course of a few days, and the opening then became permanently closed. During the past four years the parts at the seat of operation have remained quite sound, and the woman, whose diet has consisted mainly of fluid and easily digested articles of food, has not suffered from any affection more severe than an occasional attack of colic.

ENGLISCH ON PLUGGING OF THE NOSTRILS.—At a recent sitting of the Medicinische Doctoren-Collegium of Vienna, Dr. Englisch exhibited an apparatus for plugging the nostrils (*Allgemeine Wiener Medicinische Zeitung*, 1875, p. 191). This

is an improved form of Kuchenmeister's rhineuryntor, which consists in a caoutchouc tube about twenty centimètres in length, provided at one extremity with an elastic ball one centimètre and a quarter in length and one centimètre and a half in breadth. The tube and the empty and collapsed ball are to be passed into the nostril on a conductor, and the latter pushed far backwards into the pharyngo-nasal cavity. The ball, having been distended by injected water, is pulled forwards by traction in the tube, so as to occupy the posterior part of the nostril in the same manner as the plug of lint or charpie applied in the ordinary way of Belloc's instrument. The use of this apparatus has not always been attended with success, and the failure is thus explained by Dr. Englisch. The ball, which becomes quite round when distended by water, does not press equally on all parts of the walls surrounding the posterior orifice of the nostril, and interspaces are left through which there is a free flow of blood. In order that this posterior orifice may be completely closed, it is necessary that the plug press equally on all parts of the surrounding walls. This the ball of Kuchenmeister's instrument does not effect; and it is stated, as a further objection to its use, that there is a tendency for it to fall backwards into the pharyngeal cavity. The apparatus devised by Dr. Englisch consists of two caoutchouc balls mounted by a piece of elastic tubing. To the lower extremity of the lower or anterior ball is fixed a second piece of tubing, through which water may be injected. The upper ball is intended to be pushed to the back part of the nostril, so as to act as a posterior plug. The lower ball remains at the external nasal orifice, and completely closes that when water has been injected. The tube connecting the two balls is short, so that the posterior plug cannot project far beyond the margins of the posterior orifice of the nasal cavity. Dr. Englisch insists on the coats of this connecting tube being made of some firm and tough though flexible material. The posterior ball is flask-shaped, and its walls are thicker than those of the anterior or lower ball. Dr. Englisch states that the introduction of this apparatus is not attended with any difficulty.

JURIÉ ON THE ENDOSCOPE.—In a paper read before the Gesellschaft der Aerzte of Vienna, and reported in the *Allgemeine Wiener Medicinische Zeitung*, p. 192, Dr. Jurié endeavours to show that the endoscope, although not to be rejected altogether as an useless instrument, has hitherto failed to do such service as was at first expected from it. He states that it is difficult, if not impossible, to examine with the endoscope every portion of the urethra, and that he has never been able to obtain a sight of the caput gallinæ. It is equally difficult, whether with a straight or a curved instrument, to see every part of the inner surface of the bladder. In cases of disease of the bladder an examination of the mucous surface may be rendered impossible by turbidness of the urine. It is evident that the endoscope can do no service in cases of acute inflammatory affections of the bladder or urethra, since under such conditions the introduction of any instrument would hardly be justifiable. In those rare cases of valvular fold at the neck of the bladder causing impeded and difficult micturition, the endoscope can give little if any help in the diagnosis, as the fold is pushed backwards by the point of the instrument so as to be closely in contact with the inner surface of the bladder. Foreign bodies in

the bladder are not in all cases to be discovered, even on close and skilful endoscopic examination. According to the author, the size, form, and situation of an impacted foreign body can always be well made out by placing a strong light behind the slightly transparent penis. In cases of stricture the endoscope can afford but very little help; the anterior surface of the stricture may indeed be seen; no lumen, however, is to be observed, but merely folds of mucous membrane, the arrangement of which might possibly indicate the point for the introduction of a small catheter or sound.

The endoscope is of real service in the treatment of chronic inflammation, ulceration, and a granular condition of the mucous membrane of the urethra, when it is necessary to apply to the affected spot some caustic agent which it would be prejudicial to bring into contact with the whole urethral surface. In cases of disease of the prostate, the introduction of the endoscope is very difficult, and no good can be derived from it. One cannot diagnose papillomatous and cancerous growths of the bladder by means of the endoscope, as the introduction of this or of any other instrument causes hæmorrhage and turbidity of urine.

DOUTRELEPONT ON SALIVARY CALCULUS.—In a report of the last meeting of the Niederrheinische Gesellschaft, held at Bonn (*Berliner Klinische Wochenschrift*, no. 23, 1875), is a case recorded by Professor Doutrelepon, in which two salivary calculi were removed from the Whartonian duct, the most frequent seat of such bodies.

The patient, who was a woman aged forty-six, came under the notice of the author on December 9 of last year, with a large hard swelling under the tongue on the left side. This had been observed for fourteen months, had increased rapidly in size, and had given much pain. The submaxillary gland was neither painful nor swollen. The duct having been slit up a calculus was removed, which was 0.32 inch in length, 0.2 inch in breadth, and 0.16 inch in thickness. No other calculus could be felt at the time of the operation; but six days later the patient again applied, with the statement that the whole of the calculus had not been removed, and then a second body was found and removed from the same duct. This calculus was 0.48 inch in length, 0.24 inch in breadth, and 0.16 inch in thickness. It was olive shaped, and at its anterior extremity had a facette corresponding in form and size to one at the posterior extremity of the first and smaller calculus. Each calculus was found, on section, to be made up of yellowish-grey strata surrounding a white nucleus. In neither stone was any foreign body constituting a nucleus to be discerned, or any fine canal. The following is the statement of the chemical analysis of these calculi.

Soluble in water	{ Organic material	0.19
	{ Chloride of sodium	0.06
Soluble in hydrochloric acid	{ Tribasic phosphate of lime	81.65
	{ Carbonate of lime	12.60
{ Traces of iron, magnesia, soda.		
Organic material insoluble in hydrochloric acid, together with traces of silicates		5.02

W. JOHNSON SMITH.

RECENT PAPERS.

Traumatic Tetanus cured by the Internal Use of Chloral. By Dr. F. Poggini. (*Lo Sperimentale*, June, 1875.)
Bite of the Right Arm by a Horse: Traumatic Paralysis of the Radial Nerve. (*L'Union Médicale*, June 22.)

MATERIA MEDICA AND THERAPEUTICS.

DAUVERGE ON THE EFFECTS OF DIETETICS.—In the *Bulletin Général de Thérapeutique*, March 30, 1875, Dr. Dauverge (père), continues to speak of some of the effects and results of dietetics. He alludes to a recent article by Professor Bouchardat, which concluded, 'As they advance in life, young practitioners will find, like myself, that pharmaceutics do not fulfil all their promises, and they very frequently return to the employment of well-directed hygienic modifications. Such is the history of all reflecting and observant practitioners.' In illustration of this, he gives what he terms a most remarkable and illustrative case. A lady, aged about fifty, delicate and nervous, already long past the menopause, suffered for six months from intermittent pains in the left hypochondrium, the pain being sometimes insupportable. The patient was pale, cold, the pulse small and corded, and the suffering intense. On exploring the abdomen, a fulness was found filling the right hypochondrium, but without much sensibility to pressure. Was it tumour or spasm? Inclining to the latter belief, a calmative was administered, and the pain ceased. The attendant, with good intentions, gave without permission a copious allowance of soup. In the night, the pains returned more urgently than ever. By diet and the continuation of the calmative mixture she again was relieved, and the diet was renewed in the form of light panada, with cream and rice. One night she was worse, and thought she was about to expire. Next day the lady was in a most pitiable condition. She complained of pain, acute and torturing, always at the same spot. The skin was cool, the pulse imperceptible, the eyes hollow, and the tongue dry, with a very bad taste in the mouth like fæces. On palpation of the right hypochondrium, a piece of bowel was found, probably the ascending colon, on which was a tumour either around or within the intestine. Cataplasms containing laudanum and belladonna were without effect, and cold water on a well-folded napkin was applied. Immediately there followed a deep inspiration, and the patient felt relieved. The application was continued, and some whey and carbonated water formed the diet. Under this treatment the pain became supportable, but returned from time to time. There was much weakness without fever, and feeding by the mouth brought back the pains; nutritive enemata were therefore employed. In a little time cream with corn-flour, etc., could again be taken, and in a year the patient assumed her ordinary diet. The fulness in the hypochondrium entirely disappeared. Other cases are given, as of a boy with enlargement of the mesenteric glands. After divers plans of treatment had failed, he was put upon a diet of white grapes, after which he recovered, and is now a robust peasant. In another case of jaundice, the patient was not yellow but orange-coloured. After six months of futile treatment, the patient was put upon a frugal dietary of water-melons, grapes, fresh figs, etc., without bread or soup. After two months and a half of this he was again white and well. Syphilitic ulceration of the palate, and a phagedenic bubo, had also yielded to an Arab diet.

A milk diet is especially suited to dropsies, either anasarca or ascites, and by perseverance in it even grave cases may be much relieved. In a case of

persistent vomiting, with heartburn, cold milk, cold soup, and fresh carbonated water procured a perfect cure. In a case of general anasarca, with continual drowsiness and dyspnoea, with confusion of ideas, milk, with purgatives and digitalis, produced most desirable effects. In a case of diarrhoea and sthenic bronchitis in a lady, most irritable and difficult to deal with, after a diet of milk and syrup of morphia failed to give relief, lentil-meal with milk was successful. In another case, where a condition of wandering, delirium, hot skin, with frequent pulse and high-coloured urine, followed typhoid fever, cold baths and abundant fluid with milk cleared the urine, and brought about perfect recovery. In typhoid cases, with hæmorrhage from the gums, intestines, or uterus, with feeble pulse and general prostration, wine may be added with advantage.

The dietetic treatment is in practice the most essential matter in many illnesses, and is that part of therapeutics which is most difficult to determine upon, and is a problem which presents itself in each and every malady. M. Jaccoud has declared that a milk-diet will work miracles. The relations of resolution and absorption to nutrition and assimilation are being very much better understood than they were, with good results in practice.

SMITH ON GRINDELIA ROBUSTA IN ASTHMA.—Dr. Q. C. Smith, of Cloverdale, California, writes to the *Pacific Medical Journal* as follows.

Several months since, at the suggestion of Dr. W. P. Gibbons, of Alameda, we procured a small package of the solid extract of grindelia robusta, with the intention of giving it a trial in the treatment of diseases of the respiratory organs. We have used the remedy in one case only, and that was a case of spasmodic asthma. We could detect no organic lesion, either in the lungs or in any other part of the patient's body.

Mr. M., the patient referred to, is thirty-seven years of age, tall, rather spare habit, with narrow chest; a stock-rancher by occupation. He had lived in California since he was eleven years of age; he was born in Missouri, and lived there prior to his emigration to this State. He had suffered from severe and frequent attacks of asthma since early childhood, for the relief of which he had taken many remedies, with little and only temporary and partial relief, never being entirely free from asthmatic symptoms. Much of the time he was unable to walk more than a few paces at a time without stopping to get breath. About five months since he commenced to take the extract of grindelia in pills; taking, when the attacks came on, two or three grains three times a day, for two or three days, then taking two or three grains at bedtime only, for eight or ten days longer.

Under this mode of treatment the attacks became lighter and more remote; and during the interval between the attacks he gained flesh and strength, and improved greatly in his general health.

More than two months has now passed since Mr. M. felt any symptoms of his old enemy, the plague and terror of his life: and now he is heavier and stronger than ever before in his life, and can climb the rugged mountains of his sheep-ranch and the surrounding country, looking after stock and hunting game, with an endurance, agility, and speed unsurpassed by any of his neighbours. We think this happy change due entirely to the virtues of the remedy mentioned, as our patient took no other me-

dicines and continued to follow the same employment, and was circumstanced just as he had been for years before. He thinks he is permanently cured; but we entertain serious doubts of it, although the remedy has already been of invaluable benefit to him. We know 'one swallow does not make a summer,' but only give this as our limited experience with what we hope will prove to be a valuable remedy.

J. MILNER FOTHERGILL, M.D.

GARNIER ON A DEATH FROM EATING STRAWBERRIES.—M. F. Garnier relates, in the *Lyon Medical* for June 20, that on the 8th instant he was sent for to see a girl who was reported to be dying. The patient, who was a strong and healthy girl aged fifteen, but of a lymphatic and nervous temperament, was lying insensible on her bed, in a state of complete prostration; her respiration was stertorous, her face pale and livid; the pulse depressed, excessively weak, small, and intermittent. She had eaten, at twelve o'clock, a bowl of strawberries without any addition of sugar, cream, etc. It was not known whether they had commenced to ferment at all, but M. Garnier believes that such must have been the case, from the considerable distension of the epigastrium. M. Garnier immediately administered two emetics at an interval of from twenty to thirty minutes, covered her with hot linen, to endeavour to get some warmth into her icy-cold body, whilst he kept the jaws apart by mechanical means, so as to make her forcibly swallow warm water; and tickled the uvula with a feather, but could only obtain a very trifling regurgitation of the strawberries. Finally, a profuse and viscous sweat broke out all over the body, and the girl expired, her illness having lasted but three hours. M. Garnier had the coffin opened twenty-four hours afterwards, and found most distinct evidences of cadaveric decomposition and an incredible distension of the stomach and abdomen.

M. Garnier states that it is not an isolated case in his practice. He has saved four patients by emetics, but has lost more than he has saved. He has arrived at the conclusion that, if not more than two hours have elapsed between the eating of the strawberries and medical treatment, emetics may be safely administered; but, if this space of time be exceeded, he believes this means to be more hurtful than useful. The emetic remains inert in a stomach thus distended, of which it can no longer provoke contractions, and perhaps only increases its distention. M. Garnier therefore thinks that in such circumstances it would be better to give a large dose of ammonia.

He takes the opportunity of giving some advice how to eat strawberries without injury to the health. He recommends persons who can eat this fruit in its natural condition with impunity not to eat many at a time, and is of opinion that a certain amount of sugar singularly facilitates their absorption and, still more, their digestion. The juice and scraped rind of a lemon mixed are sometimes useful for the same purpose, but generally this mixture, even if compounded with powdered sugar, does not agree with everyone. It is the same with strawberries and cream. M. Garnier thinks it better to sprinkle the strawberries with a good and strongly alcoholic wine. Debilitated stomachs should not venture on Bordeaux wine; Kirschenwasser, rum, or cognac being in his opinion preferable. His last recommendation is never to eat strawberries alone; they should always be accompanied by other food, which should precede them in the digestive tube. All that has been said

of strawberries applies with greater force to raspberries, which are still more indigestible; but is not true of cherries, currants, and gooseberries, inasmuch as in their case chemical decomposition is much slower.

DRASCHE ON SERRONIA JABORANDI.—The *Pharmaceutical Journal* for June 26 contains an account from the *Zeitschrift d. allgemeinen österreichischen Apotheker-Vereines*, of May, of a sitting of the Vienna Medical College, at which Professor Drasche described the results of numerous experiments on men and animals with 'Serronia Jaborandi.' Not only were an infusion and a tincture used, but also an alkaloid which Dr. Drasche alleges that he was the first to prepare, and to which he has given the name 'serronine.' Of this alkaloid he reports a yield of about one and a half grains from a drachm of Serronia Jaborandi leaves. All of these preparations caused profuse sweating and excretion of saliva, and induced striking physiological symptoms generally similar to those which have been attributed to the use of the jaborandi yielded by the genus *Pilocarpus*. But although at present the materials for forming a judgment are very meagre, it would appear probable that what Dr. Drasche terms 'Serronia Jaborandi,' and which he states to have been imported from Brazil through France, is yielded by a piperaceous plant; *Serronia jaborandi*, Guill., being a synonym of *Piper jaborandi*, Vell. The editor of the *Pharmaceutical Journal* has seen specimens of the leaves that were imported into France, and is of opinion that, although they present characters showing they have not been derived from *Piper jaborandi*, they certainly have been yielded by an allied species. This similarity of name and all that is said concerning the source from which Professor Drasche obtained his supply, would seem to indicate that he experimented with the leaves of a species of *Piper*. Whether, however, the alkaloid is identical with that known under the name of jaborandine, or whether another powerful medicinal agent has been placed at the service of medical men, can only be decided by the aid of fuller information.

OBSTETRICS AND GYNÆCOLOGY.

BUCKINGHAM ON THE CARE OF NEW-BORN CHILDREN.—Dr. Buckingham (*Boston Medical and Surgical Journal*, March 25) says that, under ordinary circumstances, the first thing to be done for a child is to clean it; to get rid of the salve-like vernix caseosa by rubbing the body with oil, and then washing with soap and water. He has sometimes used the oil alone, working it well in at all points, and then rubbing dry with a towel. Oil is as clean as soap. The object of washing is to get rid of dirt, and whatever will remove the particular kind of dirt in question, whether soap or oil, is the best thing for its removal. Alcohol is objectionable, as it dissolves the oily matter from the skin, and has a tendency to chill the child. Once being made clean, it is not necessary that the child should have an entire bath daily. The nates and neighbouring parts should be kept clean, even if they have to be washed with every change of napkin. A very important point is the necessity for drying the skin thoroughly before dressing. A good rubbing with the hand after the rubbing with the towel is agreeable to the child.

Flesh-powder or powdered starch is not so good, and, besides, these applications frequently become acid and irritating.

The still adhering umbilical cord should be cut short, and covered sufficiently to protect the clothing. If it is not tied until the pulsations in it have ceased, there will be no risk of hæmorrhage from its cut extremity. Dr. Buckingham would never cut the cord till all pulsation in it was stopped. The cord should be short, the ligature small, the covering ample; and if the latter become offensive, in a day or two it should be removed. The belly-band should not be too tight. Strings on it are better than pins, if either be used; but the best band requires neither, being broad, thick, loose, and elastic, woven or knit of good woollen yarn.

JENKS ON RECTAL DISEASE IN WOMEN.—In the *Detroit Review*, February, 1875, Dr. Edward W. Jenks describes the association of rectal and uterine diseases in women. He says many of the disorders to which the rectum is subject are, without doubt, of much more frequent occurrence among women than men. The association of uterine and rectal diseases is quite common, as may also be said of uterine and vesical disorders. The truth is, that the continuity of tissues, the distribution of nerves and vessels, and the intimate relationship existing between the pelvic organs, render it obvious that disorder either of function, structure, or place of one may produce analogous condition in another. To treat symptoms alone in diseases of the pelvic region, as in any other part of the body where viscera can be subjected to physical exploration, is most thoroughly unscientific. There are certain symptoms common to all pelvic diseases of women; others are peculiar to certain individual diseases. He has known many cases of disorders of the rectum where the patient had been treated alone for uterine disease, and *vice versa*. He gives several illustrative cases of vaginismus and nymphomania cured by attention to the anal ulcers and fistulas which co-existed with the disease of the reproductive organs. In one case, the transition from a bed-ridden patient to a lady of active habits was quite rapid; nor did she require much further medical treatment.

PSYCHOLOGY.

ATKINS ON A CASE OF ACQUIRED IDIOCY WITH UNILATERAL CONVULSIONS.—Dr. Ringrose Atkins reports, in the *Journal of Mental Science* for April, 1875, a case, of which the following is an abstract.

J. R., a lad aged ten years, had been of average development and intelligence until three years of age, when it began to be noticed that he frequently turned his head to one side and shook it. His head appeared to increase in size. He became foolish, dumb, cross, and unmanageable.

At six years of age he had a fit of insensibility without convulsions; from this he recovered. During the next four years he had several severe convulsive seizures, and he grew extremely unmanageable, biting and tearing anyone who interfered with him. He was strong and active, and his limbs were well developed. If not constantly watched he was always wandering away from home and running into danger. His family history is good,

and free from instances of insanity, but his father is passionate and intemperate.

At the age of ten years the measurements of his head were: circumference, twenty-one and a half inches; from root of nose to occipital protuberance, fourteen and a half inches; vertex, from ear to ear, twelve and a half inches. His expression denoted want of power of attention and comprehension. He was dirty in his habits. He could not articulate, but uttered a sharp prolonged cry. He evidently understood what was said to him.

Dr. Atkins witnessed one of his fits in August last. 'He first became unconscious, lying on his back with his eyes directed upwards. As the convulsion came on, the outer angle of the left eyelid was drawn upwards and outwards, both eyes simultaneously moving in the same direction. Almost at the same moment, the left angle of the mouth was drawn in the same direction by the action of the zygomatic muscles. As the spasm proceeded from above downwards, the left arm was drawn up and jerked across the chest, and the left leg was bent and drawn towards the body by the muscles passing from the trunk to the thigh, at the same time the whole left side of the body was jerked upwards, and partially rotated from left to right. During the time these convulsions lasted, the whole right side of the body was entirely motionless, not one of the muscles of either the face, arm, or leg twitching in the slightest degree. The spasms were throughout clonic, the contractions subsiding almost instantly, and recurring again with as short an interval. The pupils were widely dilated, the right one reacted to the influence of a candle held close to the eye. These unilateral left-sided convulsions lasted, from being almost momentary in the face, for about seven or eight minutes elsewhere, the pupils at the same time becoming smaller and resuming their natural size. The twitching of the eyelid and mouth continued for some minutes after that of the arm and leg had subsided; in a few minutes more the patient returned to consciousness, and in a little time was as bright and lively as before, there being no drowsiness or stupor, as is usual after epileptic attacks.' In October he had another seizure, in which the convulsions were right-sided, commencing on the left side; and subsequently one similar attack followed by hours of sleep.

Dr. Atkins offers some remarks upon the pathology of the case. The history and symptoms lead him to regard it as one of 'hydrocephalic idiocy.' On the causes and origin of the convulsions the author adopts the line of reasoning repeatedly and ably expounded by Dr. Hughlings Jackson, viz., that all cases of convulsions and paralysis should be regarded 'as experiments made by disease on particular parts of the nervous system of man.' This method of study, he adds, is essential to a correct understanding of these cases of nervous disease, as a 'destroying' lesion of a circumscribed portion of the cerebrum may produce no obvious effects, while a 'discharging' lesion of the same portion may produce very striking results.

Taking the foregoing case as an example of this mode of investigation, Dr. Atkins observes that the convulsions were seen to follow the same course and in the same ratio as the palsy in a case of left hemiplegia. Knowing, as we do, from the recorded results of many cases, that the 'destroying lesions' causing the paralysis are situated in or near the corpora striata and optic thalami, we may fairly

localise the 'discharging lesion' giving rise to the convulsions affecting similar groups of muscles, in somewhere about the same region of the organ. The loss of speech, the author considers from the history of the case, was ataxic, from a loss of co-ordinating power in the muscles of articulation.

W. B. KESTEVEN, M.D.

OPHTHALMOLOGY AND OTOLOGY.

GRAND ON THE PERFORMANCE OF IRIDECTOMY FOR THE EXTRACTION OF CATARACT.—The performance of iridectomy during the operation for modified linear extraction has for its principal object the formation of a passage by which the lens, or any *débris* of lens-matter, may readily escape from the eye; and in order to make this passage sufficiently free a very large section of the iris is made, and the result is seen in a pupil of oval shape, and in some instances much too large to be screened by the upper eyelid. That this is very frequently the case will be admitted by most surgeons who have had any considerable experience of such operations. According to Dr. Stephane Grand (*Lyon Medical, March*), the cause of this imperfection is to be found in the manner in which many operators make the section, and he endeavours to point out this error in practice. Dr. Grand considers that it is the general custom to draw out the iris from the corneal wound and to excise all that protrudes; by this means a great deal too much of the sphincter is removed, and the result is a pupil which is too large for the immediate purpose, the removal of the lens, and may be in itself a source of impairment of vision. In order to remedy this, Dr. Grand advocates the performance of the operation in such a manner that a key-hole aperture in the iris is the result, and when this is accomplished, a pupil which is nearly circular, and which is capable of considerable mobility, remains, and at the same time the gap in the peripheral portion of the iris, which is amply large enough to permit the free escape of the lens, is yet completely hidden and protected by the upper lid. With care this may be accomplished by a ready operator if the iris be not withdrawn from the corneal wound, that is, divided with the scissors in such a way that the sphincter is spared as much as possible, in fact, provided no bridle of tissue be allowed to remain, the narrower the section can be made through the pupillary margin and the wider it is through the peripheral portion the better. The division of the iris while it rests within the lips of the corneal wound, is admittedly a matter of some difficulty, and for this purpose Dr. Grand recommends, and himself makes use of, the scissor-forceps, as suggested and employed by M. Wecker in his operation of iridotomy.

BOWATER J. VERNON.

MISCELLANY.

It is with regret we announce the death of M. Demarqay the well-known surgeon of Paris, which took place on the 21st inst., at his birthplace, Longueval, in Picardy. The cause of death was an organic affection of the stomach.

THE last census taken in the United States shows that there are 525 women practising the medical profession in that country.

DR. HORNER, the medical officer on board the *Pandora*, which recently left England for the Arctic seas, will take upon himself all the meteorological duties of the expedition.

THE TRANSPORT OF POISONS.—An American contemporary states that recently a vessel arrived at New York, containing a large quantity of fine table salt, stored in sacks in the hold, and about a hundred kegs of arsenic between decks. During rough weather on the voyage the cargo shifted, and some of the arsenic escaped from the kegs and was washed by the sea down into the hold amongst the salt. After a portion of the salt had been disposed of and removed, the captain remembered this, and began to speculate as to the possible nature of the mixture. An examination of the salt by Professor Doremus removed his doubts by showing that it contained a considerable proportion of arsenic. Fortunately, by promptly telegraphing to the purchasers, all danger of poisoning was averted.

A FRENCH LADY-PHYSICIAN.—We learn that Madame Brès, whose reception into the Faculty of Medicine, of Paris, is recorded in our impression of the 16th inst., is the first French lady who has taken such a step. She passed all her examinations in a most creditable manner, and M. Wurtz, the president of the examining board and dean of the faculty, addressed her in the following terms: 'Madame, you have not only raised women from the secondary position they have held in medicine, but your thesis is one of the best that the faculty of Paris has ever received, and it will be consigned with honour to its archives.' The title of the thesis is 'La Mamelle et l'Allaitement,' a very appropriate subject for a doctress; it is treated in an anatomical, a chemical, and a physiological point of view. From the new world, a similar occurrence is reported in the case of Mrs. J. K. Tout, of Toronto, who has passed her examination at and obtained a licence to practise from the College of Physicians and Surgeons, Ontario. Mrs. Tout is the first lady who has obtained a licence to practise medicine in all its branches in Ontario.

'BEN TROVATO.'—Dr. W. F. Atlee writes to the *Philadelphia Medical Times* as follows. 'In a letter recently received from Lancaster, Pennsylvania, where my father resides, it is said, a queer thing occurred just now. Father was in the office and heard a dog yelping outside the door; he paid no attention until a second and louder yelp was heard, when he opened it and found a little brown dog standing on the step upon three legs. He brought him in, and, on examining the fourth leg, found a pin sticking in it. He drew out the pin, and the dog ran away again. The office of my father, Dr. Atlee, is not directly on the street, but stands back, having in front of it, some six feet off, a stone wall with a gate. I will add that it has not been possible to discover anything more about this dog. This story reminds me of something similar that occurred to me while studying medicine in this same office nearly thirty years ago. A man named Cosgrove, the keeper of a low tavern near the railroad station, had his arm broken, and came many times to the office to have the dressings arranged. He was always accompanied by a large ferocious-looking bull-dog, that watched me most attentively, and most unpleasantly to me, while bandaging his master's arm. A few weeks after Cosgrove's case was discharged, I heard a noise at the office door as if some animal was pawing it, and, on opening it, saw there this huge bull-dog, accompanied by another dog that held up one of its front legs, evidently broken. They entered the office; I cut several splints of wood and fastened them firmly to the leg with adhesive plaster after straightening the limb. They left immediately. The dog that came with Cosgrove's dog I never saw before nor since.'

PRACTICAL CHRISTIANITY.—During the warm season of the last two years the board of government of the Boston Young Men's Christian Union has furnished carriages to the various hospitals of the city, so that many of the patients were enabled to enjoy a ride in the country, and derive the benefit of the fresh air as they could not otherwise have done. This charity has not only been extended to the inmates of hospitals, but has also included many an invalid living in circumstances too limited to allow of such an indulgence. To enable the Union to meet the expenses thus incurred, a public appeal for special donations was made, as of course the furnishing of rides for convalescents does not legitimately belong to the work of the Union, and the *Boston Medical and Surgical Journal* states that hitherto a generous response has been made to the appeal.

MESSAGES FROM THE SEA.—Mr. Garside, of Southport, describes, in the *Pharmaceutical Journal* of the 19th instant, the method he successfully employed for restoring the legibility of a letter which had been submerged in the wreck of the *Schiller*, and which was quite illegible until submitted to the process described. The letter was carefully brushed over with solution of sulphocyanide of potassium (one in twenty), and then, still damp, held over a dish containing hot hydrochloric acid. The writing was thus developed of a deep red colour. The *rationale* of the process is this: The iron of the ink is precipitated as peroxide upon the fibres of the paper, and remains when all other colouring matters are washed away. Being in an insoluble form, however, no effect is produced by the reagent until the fumes of the acid have rendered it soluble. Probably ferrocyanide of potassium would answer as well or better than sulphocyanide.

THUNDERSTORMS.—Herr von Bezold, of Munich, has published some interesting researches on the periodical changes in the frequency of thunderstorms during long periods of time. A German correspondent of *Nature* thus summarises the results of Herr von Bezold's investigations. High temperatures, as well as a solar surface free from spots, cause a greater number of thunderstorms during a year than the reverse. Now, as the maxima in the frequency of sunspots coincide with the maxima of the intensity of aurora borealis, it follows that both groups of electrical phenomena, thunderstorms and aurora, complement each other, as it were, so that in years with many thunderstorms aurora will be rare, and *vice versa*. From this connection between sunspots and thunderstorms an immediate electric action between the earth and the sun does not necessarily follow, but it may be simply a consequence of the magnitude of insolation, which depends on the frequency of spots. These changes in the insolation are not felt simultaneously but successively in the different latitudes. The phenomena of thunderstorms, however, do not only depend on the conditions of temperature at a given locality, but also on the state of the atmosphere at far distant points, belonging to another zone; and this is most evident with thunderstorms accompanying strong currents of wind or tempests. In this manner the peculiar intermediary position which the thunderstorm curve occupies between the curves of temperature and sunspots might perhaps find its explanation eventually.

PRACTICE OF MEDICINE BY WOMEN.—The General Medical Council of Great Britain, having received a communication from the Government asking their opinion as to whether women ought to be admitted to the Register of Practitioners of Medicine in this country, and if so, what alterations would be required in the examination rules of the licensing bodies, have had the matter under consideration for several days during their recent annual session in London now just concluded. A committee was appointed consisting of Professor Turner, Edinburgh; Sir William Gull; Professor Rolleston, Oxford; Professor Humphry, Cambridge; Sir Dominic Corrigan, Dublin, and others. They prepared a report which, after a long debate, has been adopted by a majority of fourteen to seven; it sets forth that in the opinion of the council the practice of

medicine presents many special difficulties for women which cannot safely be disregarded, but that the council are not prepared to say that women ought to be excluded from the profession and practice of medicine. They add that the education of women for medicine ought always to be conducted in separate schools; and that if the existing universities and corporations should be unable or unwilling to admit women to examination and to confer on them a license, it would then be sufficient for the Government to invest the Medical Council with the necessary powers for holding examinations and conferring on women a registrable title to practise medicine. They are of opinion that the course of education and examination should not in any respect differ from that of men. Of the importance of this resolution it is hardly necessary to speak; it is probable that with this authoritative sanction from the highest medical authority in the kingdom, such of the examining bodies as are not precluded by legal difficulties will announce their intention of admitting women to a medical examination and give them a registrable title. A short enabling Act of one clause would overcome any technical difficulty which may exist with any of the examining boards. If it should be found by the Government that none of the existing licensing bodies are willing to license women, it will then be easy to adopt the last suggestion of the General Medical Council. There are twenty-four ladies studying in the London School of Medicine for Women, Henrietta Street, Brunswick Square, under teachers of eminence selected from the hospital medical schools, and before long they ought to find that all artificial barriers to their entering on professional duties have been removed.

THE NEW SYSTEM OF INTERMENT.—On the 15th instant a number of perishable coffins, made on the principle advocated by Mr. Seymour Haden, were exhibited in the garden of Stafford House. The coffins were simply wicker baskets, of the ordinary coffin shape and of various sizes. Two of them had their meshes filled by moss, but the rest, which were supplied by Mr. Kirby, a basket maker at Derby, were left with their meshes open, like those of an ordinary waste paper basket. Two or three were double, with a space 2in. or 3in. in width between the inner and the outer basket; and this space is intended to be filled with charcoal, for cases in which any precaution against infection and decomposition may be required. Mr. Seymour Haden was himself present, and was eagerly questioned about many details of his plan, but the following handbill, which was given to each visitor on entrance, contains all the necessary explanation.—‘It is necessary, perhaps, to explain that the models shown are merely suggestive, and that the majority of them do not as yet fulfil all the conditions essential to their practical use. 1. The mesh in most of them should be larger than it is, and as open as is consistent with strength, and the perfect retention of their contents, which contents, again, should consist of the larger ferns, mosses, lichens, herbs, fragrant shrubs, and any of the coniferae, willows or evergreens, which are always to be had. 2. The osiers composing the baskets should be light (two thin ones being better than one thick one), and no more solid wood should enter into their construction than is necessary to preserve their form. 3. They should be of white, or stained willow, without varnish or other preservative covering. 4. Accompanying each of them should be a narrow leaden band or ribbon, pierced with name and date of death, to be passed round the chest and lower limbs, and through the sides, and over the top of the basket: (i), for retaining the body in its position; (ii), for the subsequent identification of the bones; (iii), for sealing the coffin, as a guarantee that the contents have not been disturbed. 5. In special cases linings of some imperishable material for a few inches upwards from the bottom will be necessary; and, in other cases, such modifications of the ordinary form as may insure a complete inclusion of the body in wool, charcoal, or other disinfectants. Of these exceptional models, No. 3 would seem to be, on the whole, the best for its purpose. 6. Other materials which are light, strong, perishable, in-

expensive, adapted for carriage, and favourable to the dissolution of the body, may do as well and possibly better than these wicker baskets. Readiness of carriage and the insurance of resolution being the main objects aimed at, several such materials do, in fact, suggest themselves, and may afterwards come to be employed.’

MEDICAL CONSULTATIONS.—The following quaint and sensible advice to young surgeons called to meet in consultation is extracted from an article by Dr. Gillespie, ‘Medical Notes about Shakspeare and his Times,’ published in the *Edinburgh Medical Journal* for June, 1875. Dr. Gillespie quotes it from a rare tract by John Halle, a surgeon at Maidstone, entitled ‘An Historical Expostulation against the Beastly Abusers, both of Chyrurgerie and Physyk in our Tyme,’ published in 1565, and edited by Mr. T. J. Pettigrew, and reprinted by the Percy Society.

‘When thou art calld at anye time,
A patient to see;
And dost perceive the cure to greate,
And ponderous for thee:
See that thou laye disdeyne aside,
And pride of thyne owne skille:
And thinke no shame counsell to take,
But rather with good wyll
Gette one or two of experte men,
To helpe thee in that nede;
And make them partakers with thee
In that worke to procede.
For in so doinge, thine honestye
Thou shalt well kepe and save;
Also thy patiente therby
Righte greate comfôrte shall have.

And also if oughte goe a wrye,
Or hinder in thy cure,
The one maye mende the other's faulte,
While frendship dothe endure.
The wounded or sore man also,
Shall have no cause to grudge,
In you such uniformitye
Whyle he may see and judge.

But one thinge note, when two or moe
Together joynged be;
About the paynfull patient,
See that ye doe agree.
See that no discorde doe arise,
Nor be at no debate;
For that shall sore discomfort hym
That is in sycke estate.

Wherefore what so ye have to saye,
In things aboute your arte;
Let it be done among your selves,
In secrete and a parte.
Wyth one consent uniformlye
Comfôrte the wounded man;
But unto some good frend of hye
Expresse all that ye can.’

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The London Medical Record.

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ON THE LOCAL TEMPERATURE OF PARALYSED PARTS. BY PROFESSOR MAURIZIO SCHIFF, OF FLORENCE.

[The subjoined is a translation of a letter addressed by Professor Schiff to Dr. Bursesi, and published in *Lo Sperimentale* for March and May.]

Three years ago, in 1871, you did me the honour to address to me a letter, which was published in the *Osservatore Medico* of Siena, and in *Lo Sperimentale*. The nature of the researches to which I was led by your request, will show everyone who is acquainted with the history and the conditions of our laboratory in Florence, that it is not through my fault that the reply has been delayed until now. I must also confess that I should have still expected other more complete and demonstrative facts, if circumstances over which I had no control had not interrupted the course of my experiments.

You speak to me of a pathologically interesting case, in which a man, after a wound of the spinal cord which, in your judgment, paralysed him on one side, had paralysis of motion in the limb, the foot being notably *paler* and *colder* than the other; and while the latter perspired habitually and profusely, in the foot of the injured side perspiration was rare, difficult, and scanty. The patient experienced a constant sensation of cold in that foot, and alleged that he could not get it warm even in the heat of summer.

In this state you found him about two years after receiving the wound, when the mobility of the limb was in great measure re-established, so that the patient could walk ten or twelve miles. He could not, however, run. There was still a slight difference in walking between the right foot (that on the injured side) and the left, and the muscles of the right lower limb were somewhat wasted.

In the morning, while at perfect rest, the patient showed, between the great and the second toes, a temperature on the left side of 98.6° Fahr., on the right of 84.7° Fahr. In the evening, after he had been walking about all day and was still perspiring, the temperatures were: right foot, 91.4° Fahr.; left foot, 96.8° Fahr.; right popliteal space, 96.4° Fahr.; left popliteal space, 97.16° Fahr. At 11 A.M., after the patient had been walking about barefooted in the house for about an hour, the temperature of the right foot was 82.4° Fahr.; of the left 96° Fahr.

You rightly observe that these results differ much from those obtained in animals, after hemisection of the spinal cord, which I had the honour to show you in a dog. In the animals operated on, the terminal part of the lower limb of the side on which the semi-division of the cord is made, becomes much warmer

than the terminal part of the limb of the side on which the cord has not been cut.

In the first days after the receipt of the wound, you found the temperature in the popliteal space on the paralysed side nearly a degree (0.9°) Fahr., lower than on the sound side; but you did not observe the temperature in the more peripheric parts. As regards the popliteal space, I found the paralysed side colder in dogs in which hemisection of the cord had been performed.

The difference in our observations seems then to be only in regard to the terminal part of the limb. At first, the question appears to be somewhat complicated by the fact that the paralysed part has not been found the colder in all cases of spinal hemiplegia in man; in two cases related by Brown-Séquard, the paralysed part was warmer, just as in the dog. In Brown-Séquard's first case, which he examined nine years after the receipt of the injury, the primary symptoms had already much diminished, but there still existed some loss of motion in the leg and arm of one side, and a high degree of loss of sensation on the other side of the body. The paralysed leg was 1.8 Fahr. warmer between the toes than the other. The upper limb on the paralysed side was 1.8 to 5.4 Fahr. warmer than the other. Perspiration was more abundant and frequent on the paralysed side—contrary to what was observed by you. Three years later, *i.e.*, twelve years after the injury, Dr. Hughlings Jackson examined the same patient. There was a slight increase of motor power on the right side, and the temperature of the paralysed leg was lower than that of the opposite limb. In another case, at which a knife penetrated the posterior part of the cervical region, it is said that the paralysed side was 2° Fahr. warmer than the other; but, in the translation from which I quote (Borrelli, 1869) it is not stated where the temperature was measured. Further on in the history, the author says that, on the fourth day of the illness, he compared the temperature of the two ears (the wound was above the origin of the cervical sympathetic) and found it 95° Fahr. on the injured, and 93° Fahr. on the sound side. . . .

I will pass on to the experimental facts which appear to give an explanation of these apparent anomalies, and which prove that there is no real contradiction between the results of clinical observations and pathological experiment. In the first place, however, I will refer to a phenomenon of which I treated in 1854 and afterwards, but of which I have not yet given a sufficient explanation.

Many authors have admitted that the local increase of temperature on the paralysed side, being produced by paralytic dilatation of the vessels, ought to remain unchanged as long as the paralysis of nerve which caused it still exists; that is to say, until the nerves or the nervous centres that have been divided are regenerated. In the very first experiments which I made on the vascular nerves of peripheric parts of the body, I was obliged to recognise the fact that this opinion, although supported by the highest authorities, was contrary to fact. The increase of temperature, and with it the vascular dilatation, is great immediately after division of a vaso-motor nerve; but diminishes after one, two, or three days, in more rare cases after a week; so that, without any suspicion of regeneration of nerve-matter, the definitive increase of temperature which remains for some time after the injury is only one-tenth, sometimes only one-twentieth, of the difference which existed at first.

But I did not perceive that the effect of vascular paralysis *entirely* disappeared, or that a part after the section of the vaso-motor nerves became *permanently* colder than the sound part; that is, that it was colder when there was no general excitement of the dilating nerves of the vessels.

These observations, made in 1854, were for some years the theme of lively discussions. In spite of many attempts, I was at first unable to give a sufficient explanation of this paradoxical fact; and many denied it, notwithstanding that clinical observation on man confirmed the results of physiological experiment. Little by little my observation was confirmed by some authors, and the discussions ceased; and, believing that the fact was generally admitted, I continued to seek for its explanation. I was, however, mistaken in supposing that the fact was generally admitted; for, twenty years later, a physiologist of such high repute as F. Goltz, of Strasbourg, published it as a new discovery of his own, adding, however, what I had not said, that the increase of temperature, which always continues to diminish for some time after the division of the vaso-motor nerves, may disappear entirely, or that the temperature of the paralysed part may become equal to that of the sound side, and even lower. Goltz's observations are exact; but we shall see that he has erred in his conclusions.

To explain this diminution of temperature, and to show its compatibility with the persistence of paralysis, I may be permitted to refer to more general considerations. An organ which has been for some time accustomed to a certain amount of irritation will not immediately re-act when that amount of irritation has been reduced to one-half, but will be at first like an unirritated inert organ. Little by little, if the irritation be not renewed, the part becomes accustomed to the new stimulus, its activity recommences, and increases up to the degree corresponding to the reduced amount of irritation. After exposure to the sun's light for some time, we see nothing if we enter a darkened room. Gradually the eye accommodates itself to the lessened amount of stimulus, the outlines of objects become more and more visible, and at last we begin to see them plainly. In order to ascertain if the same rule holds good for the motor nerves, we have made experiments on the nerves of the lumbar plexus in frogs. There are almost always certain muscles of the posterior limb which receive motor filaments, proceeding not from only one of the spinal nerves composing the lumbar plexus, but from two—and more rarely from three. If these muscles be rapidly deprived of the influence of one of these nerves, certain muscular fibres, which might be simultaneously under the influence of the two nerves, will immediately after the division of the nerve be under the influence of a reduced number of nerve-fibres; and, if our theory be correct, these fibres should be as if they were paralysed, and regain motion when they have become accustomed to the reduced amount of stimulus. A first series of experiments, made in 1863, with the assistance of Dr. Annibale Norsa, of Mantua, confirmed and surpassed our expectations. At a later date we repeated the experiments on frogs and on dogs, with the same result. The frogs being etherised, the lumbar plexus is exposed on one side, and a loop of silk is placed under one or two of the nerves which compose it, so that they may be cut without danger of injuring the others. When the effect of the division is observed immediately, and is watched from half an hour to six

hours, many of the frogs will show an increase of voluntary motion in a double sense: certain movements that were very feeble become stronger and more energetic; and it is seen also that in parts, such as the thigh, the muscles of which appeared entirely paralysed after the section, there is a considerable return of motor power. It was already known from the researches of Schiess-Gemuseus, that the distribution of the muscular nerve in the *Rana esculenta* presents many irregularities; but the facts now mentioned indicate that many muscular fibres receive nerves from different sources. We have been able to observe an analogous fact in dogs and cats in which we have divided the sciatic nerve high above the trochanter. Immediately after the awaking of the animals from etherisation, paralysis was distinct, and was much more extensive than from one to three days afterwards; at first the whole limb, with the exception of some of the flexors and adductors, appeared paralysed, while later on the animal used the limb to support itself and scratch its neck, although, in consequence of the permanent paralysis of the part, it could only do so with difficulty. In these experiments it was observed (1) that the return of motion in the muscles not definitively paralysed required a variable time in different individuals; (2) that the phenomenon was independent of the wound made in laying bare the nerve—a fact which is further proved in dogs, by laying bare, under ether, the nerves of both sides and dividing one only; (3) that the phenomenon was independent of any uncomfortable sensation which might be produced by traumatic irritation of the central end of the freshly divided nerve. This was proved in dogs in which many movements had returned one or two days after the section was made. The dogs were again etherised, and a centimètre or half a centimètre was cut away from the central end of the nerve. After the animals had awoken, their movements were not more imperfect than before the second etherisation. It is evident (4) that the return of motor power is not dependent on regeneration of nerve: for the section was made in such way that generally after death (three weeks to four months after the operation) no reunion was found; and in the few cases in which there was union, it was not formed by nerve-matter but by connective tissue.

I am sure that the phenomenon here described occurs also in man after a wound of one of the motor nerves of a limb. If surgical observation has not hitherto recorded such facts, it is without doubt due to the difficulty of making a complete examination of the patient immediately after the receipt of the injury. When in 1869 I made a search in surgical literature, I could not find an undoubted fact; and since that time I have not been able to return to these bibliographical researches. I regret that I have not been able to compare the latest American researches, especially those of Weir Mitchell.

I come now to sensibility. If a part of the surface of a body transmit its impressions to the centre by two or more nerve-trunks, and one of them be suddenly interrupted, it will be understood from what precedes that sensation may become extremely feeble, and after some time be renewed. I am convinced that many cases occurring in man are explained in this way, in which, after division of a nerve, there is supposed to be partial repair or regeneration after a few days. Bécларd and Descot (*Affections Locales des Nerfs*, 1825) mention a case in which the ulnar nerve

was cut through, along with the tendon and the artery. Sensation was lost in the little finger and along the side of the ring-finger; but within a very few days it reappeared, commencing in an indistinct manner, as if objects were touched through a glove. Laugier, in 1864, observed a case of complete division of the radial nerve and incomplete of the median. A suture was applied to the median nerve in the morning, and in the evening sensation had returned to the parts supplied by this nerve. This could not be attributed to the suture. From 1850 to 1852 I was occupied for a long time, perhaps before Laugier and other surgeons, in the suture of nerves. I found, indeed, that this greatly aided healing, but I will not venture to say that it was followed by restoration of function before the eleventh day; indeed, so small an interval as this was a very favourable exception.

Richet describes (*Gazette des Hôpitaux*, October, 1867), a case in which sensation was present in all parts of the hand twenty-four hours after section of the median nerve; but it is not clear to me what were the symptoms immediately after the injury.

Arloing and Léon Tripiér (*Journal de Physiologie*, 1869), have made on dogs a series of experiments which prove the same fact for the cutaneous sensibility of the ends of the digits. We regret that these authors thought it necessary to make their experiments without the use of anæsthetics. M. Tripiér would become convinced by a visit to our laboratory, that the success of an experiment is much more decisive when the animal is spared the pain of the operation.

In one of the experiments (twenty-third of the first series) a branch of the radial nerve was divided in a dog at the level of the metacarpus. An hour after the operation, punctures in the skin of the corresponding part were not felt; but there was sensation in the deeper parts. Next morning, punctures were felt. In another experiment (twenty-third of second series) the trunk of the ulnar nerve was divided, and certain parts of the little toe of the forefoot were insensible after the operation; but the next day sensation appeared to be a little more extensive, and on the third day it had returned on the outer side of the toe. On the following days it steadily increased. In another similar experiment sensation returned on the fourth day after the operation; and other experiments made by the same author led to similar results. Arloing and Tripiér sought in these researches to find how sensation was transmitted when the nervous communication was interrupted; they have, indeed, given a correct answer to this question, but I do not doubt that they would have discovered the true theory of the process, if, instead of taking into account only the return of sensation, they had inquired why it was absent immediately after section.

Among my experiments relative to this argument, I will here refer to those of section of the lingual nerve of one side. Immediately after the section, in adult dogs, there is insensibility of the entire half of the tongue, as far as the base. On the second or third day it is seen that, in the neighbourhood of the apex, a narrow space near the median line becomes sensible, and the sensibility increases daily. We have here evidently one of the cases illustrated in other nerves by Jeffreys Wyman, in which the ramifications of the symmetrical nerves encroach a little on the median line in such a way that each of them passes a little beyond it. Our theory explains how it is that the limits of the anæsthetic part vary

a little according as the examination (with a pointed instrument or a pincer) is made from the insensible border towards the sensitive or the anæsthetic half. In the first case, the insensible part appears a little more limited.

We have thus seen that, for the special senses as well as for motion and sensation, the general law remains the same. When the stimulation is rapidly, powerfully, and lastingly diminished, it fails for some time to produce an effect, until the excitability has raised itself to a level with the excitant. It is evident that, when diminution of stimulus is produced by paralysis of a portion of the nerves, the restoration of motion or of sensation will be only *partial*, and will only take place in those portions of the periphery which receive nerves from more than one source.* Essentially the same, without doubt, holds good for the vaso-motor nerves. If, for the present, we take into consideration that portion only of their properties which is generally called *tonus*, this *tonus* reaches all the organs not by a single nerve-trunk, but by two or more different ways. If the chief of these nerves be cut, the muscles of the vessels lose their tone over a great extent, and as it were completely. This occurs because the various vascular nerves proceeding to an organ are not distributed to the organ separately, but are intermixed like the sensory nerves of the skin (the vaso-motor nerves of the spleen are an exception to this rule), so that the same vascular branch in an organ is under the influence of different nerves. If all the vessels be not dilated, most of them are; and thus there arises a great increase of local heat, and a redness of greater extent than that which corresponds with the distribution of the nerve which has been divided. After one, three, or even five days, the tone returns in that part of the vessels which still possesses some other communication with the centre, and the local increase of temperature becomes less. As we found in our first researches, the decrease is very considerable, and generally returns on the first day, to increase on the second, in rabbits and guinea-pigs. In the toes and ears of dogs, the difference of temperature between the sound and the paralysed parts diminishes more slowly, and remains more marked than in herbivora (see Schiff, *Untersuchungen zur Physiologie des Nervensystems*, 1855.) We have thus seen that in the rabbit, after division of the sympathetic in the neck, and after extirpation of the superior cervical ganglion, the initial difference of temperature in the ear diminished in four days down to 1° 17' Fahr., and remained at this point during the life of the animal. In dogs, the difference of temperature in the hind toes and in the ear was 18° Fahr. on the first day; it then sank in nine days to 10° 8' and 12° 6' Fahr., and this difference continued through life, provided that there were no new lesion nor regeneration of the nerves.

Hitherto we have considered the vaso-motor nerves as subjected to a *tonus*, a reflex excitement proceeding from the centres. If this were their only stimulus, it would be understood why a part which receives its vaso-motor nerves from different trunks becomes very warm, and then cools a little, after the

* The experiments of Vulpian and Philippeaux, which show that the chorda tympani becomes a motor nerve of the tongue some time after section of the hypoglossal, belong, we think, to the same category of facts. The chorda tympani is always a motor nerve of the tongue; but in the normal condition its isolated influence is not sufficient to produce visible movements of the muscles.

division of the first trunk, and why the same thing is repeated if the second be cut, and so on to the last nerve but one. The cooling after the initial increase of temperature ought to always become less as long as any of the vascular nerves remain; but if the last be cut, the part ought to remain at an increased temperature through life, without cooling, just as the whole of a cat's paw remains insensible after division of the last of the nerves in the fore-arm (Arloing and Tripier). I had, in fact, thought that this was so; but a series of experiments on various animals and on various parts of the body have shown me that in this case the elevation of temperature falls a little during the early period, although the maximum temperature of the first day may often be found to have returned months after the operation. The dilatation of the vessels proceeds *pari passu* with the temperature.

This shows that there are oscillations in the medium state of contraction of the vessels. These oscillations indicate a variable condition of irritation; and as this varying irritation cannot proceed from the centre, when all the vaso-motor nerves are divided, we must seek its cause in the periphery. Here we may irritate either the vessels directly, or the terminal ramifications of the vaso-motor nerves, which probably do not partake of the paralytic change. This peripheric irritation must be variable in intensity, and the variation may depend either on the general conditions of the animal or on local conditions. We leave out of the discussion the question whether these oscillations are produced by the peripheral ganglia in the course of the vaso-motor nerves.

Before entering on the discussion we would say that, although these oscillations were first observed by us in peripheric organs in which all the vaso-motor nerves up to that time known were divided, we have also found them after section of one or more vaso-motor trunks, and in the posterior extremities after transverse division of the spinal cord at different heights.

To the first question, whether the peripheral irritation acts on the nerves or on the fibres of the vessels, it is not possible to give a decided answer. Generally, the oscillations do not manifest themselves on the first days, but, on the contrary, there is an uniform increase of temperature. I have observed this in the sole of the foot, after section of the sciatic nerve, for twelve to twenty hours, on examining the temperature every three or four hours. At a later period the oscillations appeared. After division of this nerve along with the branches of the sacral and lumbar sympathetic, I have found traces of oscillation at the end of ten hours. After rupture of the sympathetic branches which proceed to the brachial plexus from the last cervical ganglion and the first thoracic, there was a slight oscillation at the end of sixteen hours, and a second at the end of ten hours.

These facts, however, are somewhat uncertain, since the animals were not constantly watched, and he dogs were allowed to run about freely in the intervals between the observations. Thus, a rapid oscillation might escape notice, or be masked by the unequal condition of the two extremities immediately before the observation. If the dog sleep, and have one limb nearer to the abdomen than the other, the latter will for some time be the colder. If the dog run, and touch the ground more with the sound limb, this will lose more heat, and will for some time be colder. On the other hand, an absence of oscil-

lation for ten hours is of little importance, since this time approaches closely to the duration of an oscillation in some dogs, whether sound or operated on. I can, therefore, only say, with very great reserve and in a doubtful manner, that in dogs there appears to be an absence of periodical oscillation in the vascular contraction during the first period after the paralysis of the vaso-motor nerves. This proposition gains a little strength if we extend the observation to the ear of the rabbit. Here there is seen an at least *analogous* periodicity in the contraction of the visible vessels and in the temperature in the healthy animal, with very frequent oscillations and very short intervals. As I have pointed out elsewhere, this periodical contraction ceases after division of the cervical sympathetic, and is entirely absent for three or four days or more. A certain periodical movement is then re-established; but it is not *synchronous* in all the vascular divisions of the ear, and sometimes takes a peristaltic form.

Admitting, then, the analogy which we seek to establish, the facts do not yet entitle us to conclude with certainty that the periodical peripheric irritation does not act directly on the muscles of the blood-vessels; but the temporary arrest of all movements immediately after section, after a lesion which affects no tissue but the nerves, indicates with a certain degree of probability that the peripheric agent *must* act on the nerves, and *may* act simultaneously on the nerves and on the muscular structure of the vessels.

This probability would be greatly increased, if we might take into consideration another still more remote analogy. The movements of the posterior lymphatic hearts of the frog are interrupted after section of the spinal motor nerves. The arrest of movement lasts from eight minutes to ten hours. Then there commences a new movement, arising from a periodic peripheric cause; and this movement, which I described in the *Jena Annalen*, in 1850, is normal, just like the movement of the central artery of the rabbit's ear, five days after extirpation of the inferior cervical ganglion. In the lymphatic heart, which is a striated muscle, the neuro-muscular form of the movement indicates clearly that the peripheric cause which produces it acts on the terminations of the nerves and not directly on the muscles.

We may give a more decided answer to the question whether the peripheric cause which produces the oscillations acts simultaneously on the whole body or independently on each part. The reply will be easy, if I first give an idea of the manner in which these oscillations were shown in two dogs rendered paralytic by transverse section of the whole spinal cord in the lower dorsal region; in this way, the two posterior limbs were placed in similar conditions. Both were independent of the medulla oblongata and upper part of the spinal cord; both remained motionless, unless excited by some external cause, which generally could be easily avoided. The animals were placed in a rather narrow box containing hay, with both legs exposed to view and lying apart from the body. The observations were made in summer in a room that was cool enough when there were no considerable variations of temperature. On the fourth day of the second elevation, there was a considerable rise of the surrounding temperature, and therefore the record from the morning of the fourth day to the evening of the seventh is suppressed. In both animals, the temperature in the posterior limbs underwent an elevation up to 97° Fahr. in the first three days after the operation,

in which no oscillations could be detected; these then appeared, at first being very feeble, and then gradually stronger. The appetite and the general temperature of the animals did not indicate the presence of traumatic fever. Eight hours after the operation, the temperature in the rectum indicated a rise of 1.8° Fahr.; this continued for only two hours, the appetite remaining good. The observations were made on the first dog nine days after the operation; on the second in the third week; and they were made each hour from 1 A.M. to 12 P.M. To save time, the temperature was not measured by the thermometer; and, as exact measurement was not necessary, it being desired only to know the general character of the oscillations, I contented myself with noting the impressions which the contact of the side of the foot made on my left hand, which is very sensible to oscillations of temperature, and which during the whole time of the observations was kept warm as far as possible. These observations, and others made on paralysed animals, show that—

1. The temperature in the terminal part of the paralysed limb is not invariable, but is subject to slow and rather considerable variations.

2. Each of these variations extends over a period of several hours; sometimes there are only two, sometimes three, in twenty-four hours.

3. Sometimes other oscillations of short duration alternate with the greater ones.

4. These oscillations in two limbs placed in the same external conditions and equally paralysed, do not always run parallel; sometimes one extremity is very warm and the other very cold, which indicates that the cause which produces the oscillations does not depend on a general condition of the body, but acts locally on each part.

5. To determine if a paralysed part be in general rendered warmer or colder than the normal state by paralysis, two measurements daily at stated times are not sufficient; the medium temperature must be ascertained.

In a series of thermometric measurements made on the first dog every two hours, and continued for twenty-four hours, in the third week after the operation, I found the medium temperature 8.6° Fahr. above the normal—the latter being 87° , as ascertained on the day before the operation. Frequently repeated measurements before operation in the case of the second dog gave a temperature of 73.4° Fahr. in the hind limbs; I believe, however, that this figure is rather too low, as the animal stood on a cold table in the intervals. The medium temperature taken at the end of the second week was found to be 82.4° Fahr.; and a second series of measurements taken from 12 at noon to 12 at midnight gave 82.2° . This dog, from 7.30 to 9 o'clock on the morning of the day when the second series of observations was made, had shown an average temperature of 63.5° ; we thus see how isolated measurements of temperature may mislead, and that observations should be made continuously, day and night, to ascertain the true influence of a paralysis.

In paraplegic dogs with pale feet, it is readily seen that the vascularity is increased when the temperature is raised, and diminished when it is lowered; indicating a periodical oscillation in the contractions of the small vessels.

It will be interesting to follow out the same fact in hemiplegic paralysis, in which a comparison can be easily made with the corresponding non-paralysed limb. Such observations, however, are so difficult

and laborious, that I have been obliged to content myself with observations more scanty and less prolonged than those on paraplegia. The difficulty in hemiplegia, when we wish to compare the temperature on the two limbs, consists in making all the conditions alike except the paralysis. When only one hind limb is paralysed, and the animal moves about freely, there are, beside the paralysis, two other conditions of inequality of temperature; muscular movement, which tends to raise the temperature of the sound limb; and contact with the ground, which tends to cool the foot; to these is added the circumstance, that the sound limb is often a little moister than the paralysed one. All these conditions tend to make the sound limb too cold. If, to equalise the temperature, the animal be placed with its legs extended on a piece of woollen, continual watching is necessary to prevent it from drawing them under its body. To avoid this inconvenience, I have often used a fishing-net, in which the dogs were suspended in the air, while their four legs, projecting through the openings, were extended. Even here continued watching is required, for the dogs sometimes succeed in drawing up one or both legs and bringing them towards the belly, and thus increasing the temperature, especially in the sound limb. The observation of unilateral paralysis is, then, attended with difficulty; but it promises such an interesting result, that an attempt should be made to overcome the difficulty, at least partly, so as to be able to arrive at an approximately correct measurement of the temperature during twenty-four hours.

If dogs and cats, when operated on, were supplied with a large quantity of food, a tendency to sleep during digestion was produced, so that they remained stretched out during the greatest part of the day. They were accustomed to lie on a woollen cloth or on American leather covered with a layer of tow. In order to extend the two legs equally and to prevent them from being drawn under the body, a somewhat stiff sleeve of paper was placed over each limb from above the knee to the heel. It was so arranged as not to press on the limb when extended; but when flexion was attempted, resistance was felt. This plan succeeded with many dogs, which in a few days became accustomed to the apparatus. In this way I succeed, with many interruptions, in taking a series of measurements by means of a very sensitive thermometer, which indicated a variation of $.18$ of a degree Fahr., at a temperature of 104° . The temperature was generally measured by subtraction; that is to say, by warming the thermometer in my axilla to a point above that which could be found in the dog, and then beginning to take the temperature of the leg which seemed the warmer to the hand. In this way I succeeded in ascertaining that in unilateral paralysis, which for some days after the operation produces an uniform elevation of temperature in the leg, the interdigital membrane showing a heat of 96.8° or 98.6° , there appear after a certain time oscillations in the temperature and in the turgor of the vessels, analogous to those found in paraplegia.

The paralysis in these experiments was produced either by division of the sciatic nerve, or by simultaneous section of the sciatic and crural nerves, or by dividing half of the spinal cord in the lumbar or lower thoracic region; or paralysis was produced only in that portion of the vaso-motor nerves which arise from the thoracic and superior lumbar portion of the cord, and pass in the abdominal sympathetic

to the lumbar and sacral plexus. For this purpose, the continuity of the abdominal sympathetic was divided at a higher or lower point. For the upper limb the result was obtained, either by dividing the sympathetic under the first or second rib, or by interrupting the communications of the inferior cervical ganglion with the brachial plexus. These experiments on the sympathetic presented the advantage of producing vaso-motor paralysis alone, while the movements of the limb were preserved. But the integrity of the movements increased the difficulty of accurate observation. In the other experiments, in which the spinal cord or the nerves was divided, the animal was always observed when the wound was healed, and voluntary motion had returned in an incomplete manner in the whole limb. In the experiments where the spinal cord was half divided, voluntary motion was often absent in the toes at the time of observation, while extension and flexion could be performed in the tibio-calcaneal joint, and in the knee the movements were normal. The observations were made when there was no trace of fever.

The first fact shown in these researches was, that the sound limb manifested oscillations of temperature very similar to those in the limb operated on, but having a more regular rhythm. Generally in the morning the sound limb, the animal lying with its legs extended, was cold, or its temperature was not elevated. The temperature was generally 68° to 78.8° Fahr., and sometimes remained at this point till three or four P.M., while in other cases it had already risen at 11 A.M. This increase was of variable duration; a rise of five to seven degrees continued for two to five hours, and then there was a fall. From seven to nine P.M. there was generally a rise of 9° or 10.5° ; if the animal slept during the time, the temperature increased still more, reaching a maximum which it maintained till midnight, or even longer. I have no record of observations made on the sound limb during the second half of the night, but between five and six A.M. its temperature generally fell. In many dogs I could only observe a single oscillation, the temperature rising towards the evening. In a few others, there seemed to be more than two oscillations of short duration; but the fact could not be well followed out, in consequence of the difficulty in always keeping the paws uncovered and immovable. Taking food (which was given twice in the twenty-four hours) did not seem to me to interrupt the course of the curve in most of the dogs; but in some it was evidently attended with a lowering of temperature, perhaps because they endeavoured to stand on the leg.

While the sound leg was cool, the paralysed one, the animal being stretched out, generally had a temperature of from 5° to 14° Fahr. higher. When the temperature of the sound limb rose, that in the paralysed limb might remain stationary; but the temperature on the two sides did not become equal, since before this equality could be reached there was a rise of temperature in the paralysed limb, at first more rapidly than in the sound one; but towards the end of the rise the heat of the paralytic limb somewhat abated and at last became stationary, while that in the sound limb continued to increase, until at last it for a time slightly exceeded that of the paralysed limb. I have thus often found that late in the evening the paralysed limb had a temperature of 95° or 96° , while the healthy limb had one of 98° , and even in some cases 100.5° or more.

When the animal was allowed to run about in the room in the morning, the temperature being relatively low, and, if the weather were dry, in the garden, the temperature of the paws fell a little; and in animals which had recovered from the first effects of the operation, and moved with their two hind limbs, it was seen without exception that the temperature of the paralysed limb fell more rapidly. Sometimes it reached a point a little above that of the healthy limb; but most frequently I observed it to fall to about 1.5° or 1.8° or 2.7° lower. If the animal then rested, the temperatures became almost equal; but it was some time before the temperature of the paralysed limb again became higher than that of the sound one.

If the animals lay well stretched out in their box, the temperature of the air being above 86° or 89.6° Fahr., the two hind limbs became warmer, the sound limb becoming 1.8 or 3.5 degrees warmer than the paralysed one. The same was observed in paralytic animals, in which the hind limbs, which were warmer before the animals were placed in a stove, remained colder than the fore limbs when the temperature of the animal was in equilibrium with the surrounding atmosphere.

From these facts, it may be concluded that, in animals at rest and not tied down, paralysis of the vaso-motor nerves limits the oscillations of temperature, inasmuch as these oscillations, both upwards and downwards, remain inferior to those of the corresponding sound part. In an animal at rest, the oscillations *below* the medium are more limited in the paralysed part than those *above* the medium; thus, when the two extremities become moderately cool, the paralysed limb remains considerably warmer than the sound one, and when the limbs again become warm, the sound limb may become only a little warmer than the paralysed one.

It is difficult, from various causes, to make a correct observation of the medium temperature; and it is necessary to make several observations to obtain a satisfactory result. In a dog, on the first day after removing the inferior cervical ganglion, I have found a difference of nearly 22 degrees in favour of the affected limb. When the wound was healed, and the animal had become accustomed to lie stretched in its box, there was found in the fourth week an average difference of about 11 degrees in the same direction. When the two limbs were at their highest temperature, the sound was about 1.6 degrees warmer than the paralysed one. Under the same circumstances I have found in a dog, three months after division of the sciatic nerve, an average difference of more than 7 degrees in favour of the paralysed limb. If the animal were then allowed to run about in the garden, the difference at first diminished, and after some days rapidly increased. But with this increase ulceration was observed to commence on the dorsum of the toes. After division of the abdominal sympathetic on one side between the third and fourth lumbar ganglia, the permanent average difference was only 3.5 degrees, when the animal ran about freely in the garden in the intervals of measurement, and when each measurement, made every second hour, was preceded by rest for twenty minutes in the extended position on a piece of woollen. In the same dog, placed *permanently* on woollen, the average difference rose to 7.5° . The maximum rise of temperature was about 1.8 degrees less in the paralysed than in the sound limb.

(To be continued.)

VULPIAN'S EXPERIMENTAL PATHOLOGICAL STUDIES ON THE PHYSIOLOGICAL ACTION OF TOXIC AND MEDICINAL SUBSTANCES.

(Continued from page 398.)

M. Vulpian proceeds to describe the action of jaborandi on the heart and on the iris. He illustrated his lecture by experiments on frogs. Taking some frogs whose hearts were laid bare, he introduced a considerable quantity of the aqueous extract of jaborandi leaves under the skin of the tibial region of one of the legs. Another frog, whose heart was also exposed to view, but which had not been poisoned, was placed on the same board as the first frog. The subcutaneous insertion of the extract of jaborandi leaves had been made for a longer or shorter space of time on the frogs submitted to the action of that substance, so that the different degrees of that action could be seen. In the frogs most recently operated on, the movements of the heart were much agitated, but not stopped; the auricles were gorged with blood, and did not contract themselves completely at every systole. The systoles of the ventricles were more complete. Jaborandi acts more rapidly on the auricles than on the ventricles. On the frogs in which the subcutaneous insertion of the extract had been made for about a quarter of an hour, the heart stopped; the auricles and the ventricles remained motionless in full diastole. The state of the heart entirely represents that which is produced by muscarine. M. Vulpian then placed one drop of a slightly concentrated watery solution of sulphate of atropia on the heart of one of these frogs. After some moments, spontaneous and rhythmic movements reappeared in the auricles and ventricles. These movements, at first weak, became gradually stronger, and soon, sometimes at the end of a minute, became as strong as and even stronger than in the normal condition. In other frogs he injected, under the skin of the tibial region of one of the hind legs, one drop of the solution of atropia, which had been used to revive the movements of the heart stopped by the extract of jaborandi. Ten minutes after this injection had been made, and whilst the previously exposed heart was beating regularly and strongly, M. Vulpian introduced into the tibial region of the hind leg of the opposite side a large quantity of extract of jaborandi. The heart was not in the slightest degree disturbed, the atropia having completely protected that organ from the ordinary effects of the extract of jaborandi. This constitutes a point of resemblance between the watery extract of jaborandi and muscarine. If the watery extract of jaborandi be placed in direct contact with the exposed heart of other frogs, the effects will not be precisely identical with those of muscarine. Muscarine, in these conditions, arrests the heart in full diastole, as when it is subcutaneously introduced into a limb the heart brought into contact with the extract of jaborandi will also stop in a few moments, but the ventricle will be contracted in tonic systole; that is to say, in a similar state to that produced by the action of digitaline or any other analogous poison on the heart. It is very evident that this kind of stoppage of the heart, in the case of direct application of the extract of jaborandi to that organ, is due to a direct irritant action on the myocardium. If a drop of the solution of sulphate of atropia be placed in contact with the heart thus stopped, the effect will be different, according as the stoppage is quite recent

or has lasted for a certain time. If the stoppage have only lasted a few instants, the spontaneous rhythmical movements of the heart may revive. If the systolic stoppage of the ventricle have lasted for some minutes, the sulphate of atropia may remain inactive.

In mammalia, it is by the help of intravenous injections of jaborandi leaves that the paralysing action of the active principles of this plant on the heart may specially be shown. M. Vulpian, in one of his experimental lectures, showed an experiment which left no doubt on the subject. An index was placed in contact with the heart of a dog, which had not been subjected to any preliminary drugging, through the thoracic walls; then forty grammes of water, in which four grammes of pulverised jaborandi leaves had been infused, were slowly and carefully injected towards the heart.

By the aid of the index the movements of the heart were seen to be agitated, become very irregular, and at the end of some seconds very much slackened; from 120 to 130 per minute, their number had fallen to five or six in the same space of time. Almost immediately two centigrammes of sulphate of atropia in a solution of about fifteen grammes of water were injected into the same vein, by the heart. In less than half a minute the movements of the heart had regained their frequency and their normal condition; they even became more rapid than before the injection of the jaborandi.

Similar effects are observed if a watery infusion of two or four grammes of jaborandi leaves be injected into one of the crural veins of a dog previously chloralised by intravenous injection of hydrate of chloral. If sulphate of atropia be injected into the subcutaneous cellular tissue of a dog twenty minutes before giving it an intravenous injection of a watery infusion of three to four grammes of jaborandi leaves, this injection will not exercise the least influence over the movements of the heart. An analogous result is registered when the experiment is made on a dog curarised and submitted to artificial respiration. Under these conditions, the intravenous injection of a watery infusion of three or four grammes of jaborandi does not, as a rule, produce any slackening or notable disturbance of the heart's movements.

Curare retards, weakens, or even also prevents the action of the extract of jaborandi on the heart of the frog. If a strong dose of this extract be introduced under the skin of the tibial region of one of the hind legs in a previously curarised frog, the movements of the heart may not show any modification either in energy or frequency during the whole time (one, two, or even more hours) that the animal will remain under observation. This effect of curare is explained by the weakening of the movements of the heart produced by this poison. As to this weakening, it is itself due on the one hand to a certain amount of paralysing action exercised by the curare on the intrinsic nervous system of the heart, on the other to the slight paralytic dilatation it brings on in the peripheral vessels. As the dilatation of the peripheral vessels and the weakening of the movements of the heart result in a slackening of the circulation in the capillary network, the absorption of the substances introduced subcutaneously should be slackened. As the quantity of blood which flows after each systole into the cardiac cavities is smaller than in the normal condition; as on the other hand this blood contains less of the active principles of jaborandi, since the absorption is slower, a considerable diminution of the action of these principles on the heart

necessarily results. These remarks are also applicable, at least in great part, to the mammalia, and may afford an explanation of the influence of the preliminary curarisation on the cardiac effects of the intra-venous injection of a watery infusion of three or four grammes of jaborandi leaves.

M. Vulpian cannot declare himself certain whether the substance which in jaborandi produces the slackenings and the diastolic arrest of the movements of the heart is different from those which bring on sialorrhoea and diaphoresis. He, however, points out that the watery extract of jaborandi retains its sialagogue and sudorific properties a long time after its preparation, whilst it loses nearly entirely at the end of a few days, the property of acting on the heart of the frog by subcutaneous absorption. This observation will evidently have a certain importance from this point of view. But it should be added that in mammalia the difference between the freshly prepared extract and that a little older, with regard to action on the heart, has been much less striking. The extract which has been prepared for one or two months still acts powerfully on the heart of dogs, into the crural veins of which it has been injected. The extract of jaborandi acts then on the heart of the frog by subcutaneous absorption, by producing a diastolic arrest of its constituent parts, like muscarine. It is probable that the mechanism of its cardiac action is the same as that of the action of this last-named poison. Like muscarine it seems to bring on diastolic arrest of the auricles and ventricles in the frog, by exciting the peripheric extremities of the moderator nerves of the heart, that is to say, the cardiac filaments of the vagus. But it is allowable to ask if there is not an error of interpretation here, and if its true action does not consist in a paralysis of the peripheric extremities of the sympathetic nerves, of those which are exciters of the cardiac movements.

Finally, M. Vulpian refers to the considerable amount of myosis brought on in mammalia by jaborandi. This contraction of the pupil is as marked as that produced by the extract of Calabar beans. It is, likewise, only distinctly present, as we have seen, when the extract of jaborandi is applied directly to the eyeball, between the lids. M. Vulpian reminds his hearers that the injections of infusion of jaborandi leaves into the veins provoke on the contrary a dilatation of the pupil, due, without doubt, to the irritation originating in the viscera, especially in the gastro-intestinal canal, under the influence of these injections.

The extract of jaborandi therefore acts on the iris in a manner totally opposed to the action of atropia on that organ. These two substances are still more antagonistic with regard to their influence on the iris than they are with regard to their influence on the secretions and on the heart. Atropia dilates the pupil by exciting the peripheric extremities of the sympathetic nerve-fibres which distribute themselves to the iris; at least, this is the theory admitted by the majority of physiologists. It may therefore be presumed that jaborandi acts in an inverse fashion to produce pupillar contraction.

According to this hypothesis, it would be by paralysing these same peripheric extremities of the sympathetic cardiac fibres, that the active principles of this plant induce the considerable contraction of the pupil observed after the application of the extract of jaborandi to the eye. It is a question whether the sympathetic nerves of the iris may not be considered,

up to a certain point, as moderator nerves, preventing the filaments of the motor oculi communis from displaying all their activity, and inducing a permanent constriction of the pupil. This is a question which is raised by the study of the comparative actions of the extracts of jaborandi and atropia on the iris, and the examination of which is reserved by M. Vulpian for his lectures on the action of belladonna and atropia.

HEWSON ON THE TREATMENT OF FRACTURES BY SUSPENSION.

The following lecture by Dr. Addinell Hewson, of Pennsylvania Hospital, on the treatment of fractures by suspension, and the mechanical principles involved in it, has recently appeared in the *Philadelphia Medical Reporter*.

As I stand very much alone among the teachers of surgery in Philadelphia, in advocating the method of suspension in the treatment of fractures of the lower extremities, I will avail myself of the occasion of showing you, to-day, the results of such treatment in a case of fractured thigh, to discuss some of the mechanics involved in it. This case was admitted six weeks ago, with an oblique fracture of his right thigh, at about the junction of its middle and upper third. When admitted, there was one inch and a half shortening, the lower fragment being drawn up under the upper, which was rotated and tilted forward. Immediately on admission he was put in the apparatus most generally in use here. Sand-bags and extension by pendent weights (that of two of our Philadelphia bricks suspended over a pulley of two inches diameter) secured at the foot of the bed. This apparatus having been applied before I saw him, I made no change until two weeks had elapsed, when it was evident to all that a bad result would ensue if the plan were continued. You will remember that I then brought him before the class, and after pointing out the deformity and shortening, still one inch and a half, I also stated briefly my convictions that no plan of treatment in the horizontal position could make a perfect cure in such a case; that the plan to be adopted must be one which would bring the lower fragment into the plane of the upper, for there was none by which we could reduce such an upper fragment to the line of the lower. The plan for this, then, was evidently that known as flexion, and of its varieties. I briefly stated my preference for the suspended splint of Professor N. R. Smith, of Baltimore. This splint I then applied in your presence, and to-day I have to show you the result of its four weeks' continuous use. The patient, you see, seems perfectly comfortable with the limb suspended. He sits up in bed, and moves about from side to side, and would seem to have no forces exerting their influence on his limb. In a former lecture I referred to the value of fixing the neighbouring joints in the treatment of fractures, and here you will notice the knee has been controlled by a small angular splint in the ham, and there has been applied laterally a large piece of binder's board, to keep the fragments in the same plane, and so let him have the use of his hip to sit up or change the angle of his body when desirable. Otherwise, we should have had to fix the hip-joint.

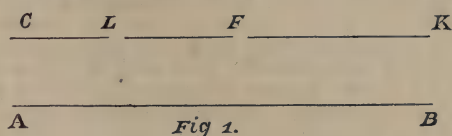
On removing the apparatus and straightening the limb on the bed, you see there is no deformity at the seat of fracture, and little if any shortening. By close examination, we can detect callus at the seat

of fracture, but no distortion in the line of the limb. And as to the shortening, measurements by the most accurate means do not reveal anything over half an inch, a result, in that respect, far better than we had any right to expect, for you will remember that this has all been accomplished in the last four weeks. When I direct the patient to rotate the limb from the hip-joint, and compare this motion with similar motion in the other, you will notice some little difference; that is, he averts the foot of the fractured limb to a less extent, and inverts it to a greater extent than he does the one of the sound side. This we see constantly after the best of cures of fractures in the upper part of the thigh, and always in a more marked manner where the cure has been made by extension on the horizontal plane; this is from the fact I have stated to you before—the rotation of the upper fragment, which is not met at all in the latter method of treatment as it is in the former. The cure in this case may, therefore, be unhesitatingly pronounced a perfect one.

I remarked to you a moment ago, before disturbing the dressing, that the patient seemed, with his limb suspended in the air, to have no forces whatever exerting their influence on his limb. Now I will show you, by a simple experiment of suspending his nude limb in a sling below the knee, attached to a cord passed over a small pulley wheel, and a movable force attached to the other end of that cord, that it requires a considerable amount of force to hold the heel sufficiently off the bed to allow the limb to swing. To maintain so slight an elevation as this, you see the weight of three whole bricks (over thirteen pounds) is required; and as the segments of the cord from each side of the pulley are parallel, and the pulley is fixed, we know, by a law of elementary mechanics, that the resistance and power are just equal in gravity. To raise the limb still higher, we have, as you see, to add more bricks to the cord; and to overcome such gravity as exists in the limb, flexed at the knee, and raised high enough to make the axis of the thigh form an angle of about twenty degrees with the plane of the bed, we have to use six bricks, or twenty-seven pounds weight. Effects of such resistance and power are to be seen in this man's ham, by the condition of the tissues there; they are reddened from the pressure. I will now re-apply the dressing, and as I do so you will notice that I first, after supporting the bent knee on a pillow, secure the wire splint on a dorsum of the limb by a number of strips of bandage, two at the knee-joint, retaining the angular splint in the ham; two at different points of the thigh; two, for the same purpose and manner, in the leg portion, and one for the heel. I then suspend the whole from the pulley by the cord, using, as a counteracting force to the resistance offered by the limb, a check-block on the two parts of the cord, so that we do not have the movable force, as with the bricks. I am not only careful now to see that the tension in each of these strips is the same, but move the frame from which the suspension is made so far down the bed that the suspending cord will no longer be perpendicular to the bed, but form such an acute angle as will increase the traction on the lower fragment, and even, when we require it, raise the buttock off the bed, sufficient to pass the hand under it. This being done, we next apply a roller from the toes up to the groin, and so effect a thorough diffusion of the resisting force offered to such a position of the whole limb. To maintain the limb in that position, I will now show you that the

movable weight of seven bricks is required; that is, over thirty pounds. You can, therefore, no longer think that there are no forces at work keeping up extension and counter-extension at the seat of fracture in such a case, when suspension is being used. This I wish to discuss with you still more accurately in relation to the principles of mechanics involved in it, and for that purpose I will first consider those involved in the method (Fig. 1) of extension, so called.

If we take C L F K to represent the fractured limb, when in an extended position, and A B the surface of the bed covered by that limb, we have the weight of the limb diffused over that surface, and the weight and resistance are equal; we have the same state for the rest of the body and surface of



bed covered by it. The surface of the bed being horizontal, the centres of gravity for every portion of this man's body and limbs, when at rest, are at right angles to the surface underneath them, and the corresponding points of the bed furnish, in each instance, a resisting force in a vertical direction, and directly opposing them. In this respect both limbs are alike, but where a fracture exists in one a new force comes into play to disturb this state of rest, and which has no such action in the sound limb. I refer to the traction-force produced by the muscles on the front and back part of the thigh, known as its long flexors and extensors. These, by the tilting up and forward of the upper fragment, do not have the firm resistance offered, through the axis of the thigh-bone, to their free contraction, as in the other limb; but, as by their contractions they will approximate the points of their origin and insertion nearer and nearer to each other, a displacement must be effected in the portion of limb below the fracture, if their contractions are capable of moving it on the bed, for such muscles may be paralysed, and then no change of position is brought about, or they may be so weak as not to cause it. Where they are capable of producing shortening, it is evident they draw the limb up the bed; for, acting as a moving force between two movable bodies, they move and approximate, the lesser to the greater in weight. With the axis of the whole limb and the plane of the bed supporting it being still horizontal, the resultant of the action of these two sets of muscles would be in a horizontal line, owing to the lines of their forces forming the same angle with the axis of the thigh at the knee-joint, as seen in E F C and D F C, Fig. 2, provided these muscles were equal in force. A careful study of their relations at the hip-joint will show, however, that, even admitting the power of the muscles to be equal, their mode of application from there must result in other than a horizontal line. Thus D (Fig. 2), which represents the anterior superior spine of the ilium—the origin of the rectus femoris—and E, which represents the tuberosity of the ischium—the origin of the chief part of the ham-string muscles—when connected by a line, are found to bear a singular relation to C—the centre of the acetabulum and the fulcrum on

other, of the muscles, would appear, from the figure (2), to be about equal, but this is when the limb is extended at the knee-joint. When we flex that joint a different state exists, owing to both these sets of muscles being inserted into the leg-bones below the knee, and which revolve round the segment of the circle formed by the condyles of the femur. Hence when the knee-joint is bent to a right angle, the distance from E, the origin of the hamstring muscles, to their insertion, is absolutely diminished an inch and a half, and the tension brought to bear on the rectus femoris in that position is fully counterbalanced by the flexion of the thigh to the line of twenty or thirty degrees from the plane of the bed. Hence, in that position of the limb, elevated and flexed at the knee and hip-joint, the muscular power to resist the adjustment of the fracture, either where the manipulation of setting, as in the treatment by extension, or the application of the suspended splint, is reduced to a minimum. The advantage being decidedly for the latter method, as in it the reduction is made more gradual, and the same force which accomplished it is steadily kept up in the line in which it is most efficient, whereas, in the former, new forces have to be brought into play, and they in a line at great disadvantage. When we find, in a day or more, that the adjustment has been accomplished, that is, sufficient force has been exerted to overcome the displacing power of the muscles, we can readily relax or diminish it by lowering, so that the buttock rests well on the bed. Whereas, if at that time shortening is still evident, we can shorten the suspending cord of our splint, and so elevate the leg and lower fragment, and make the weight of the buttock an extending or traction force. Here the suspended limb resembles very accurately the arms of a quadrant balance, the leg representing the long loaded arm, and the lower fragment of the os femoris the short arm, to which is attached the weight to be balanced or drawn on. All above what is required to raise the knee up after the heel has ceased to rest on the bed must then be what is necessary to counterbalance such weight, or indicate the traction made on it. To carry the knee, in this instance, through twenty degrees, we found we had to use a force represented by three additional bricks, or over thirteen pounds, and to raise it ten degrees further we had to add another brick; making in all seven bricks to maintain the limb in the position of suspension which we desired. Setting three of these off for the weight of the limb below the fracture, we have had a traction-force of the balance, or eighteen pounds, constantly acting, and that without inconvenience to the patient, to overcome the shortening. I think I may, therefore, claim advantage for my favourite method of treatment, both as to the quantity of force and the direction in which we can use it, all demonstrable in accordance with the strict rules of mechanics.

BINET ON IDIOCY AND CONSANGUINITY.

Is consanguinity in itself a cause of degeneration, or does it favour such, or is it without influence? In the case where the related parents are so healthy as to produce sound, strong, and intelligent children, would they, if unhealthy, have produced pernicious results?

These, said Dr. Binet (*Annal. Méd.-Psycholog.*, Nov. 1874) are still debated questions, and opinions differ. In a certain department was a family, where

the parents were sound in mind and body, but their three children were idiots. Inquiries as to their antecedents elicited that the parents' grandmothers were sisters. They were married to men who were in no way related to themselves nor to each other. The elder of these two sisters had two boys and five girls, the younger two boys and two girls. One son of the younger married a daughter of the first (his first cousin), the other son married a woman in no way related to him. From these two brothers descended the parents of these idiots (thus related in the second degree). On the father's side are two blood-marriages, one after the other, on the mother's side one. In the families spoken of, there have been up to now, no hereditary failings such as insanity, epilepsy, idiocy, scrofula, etc. The direct and collateral ancestors were healthy in all respects, lived in the country, and were of mature age. The father of the idiots had no brothers or sisters, the mother had brothers and sisters who married, but whose children bore no signs of idiocy. The father was twenty-six years old when he married and the mother thirty; they lived regular and sober lives, and were in good circumstances.

The eldest of these three children was born twenty-seven months after marriage, at the full period. Up to the fifth month of pregnancy the mother had suffered from vomiting, loss of appetite, loathing of food, and was very thin. The birth was easy, and the mother made a quick recovery. The child was strong, suckled without difficulty, and seemed healthy. After five weeks it began to vomit, grew thin, and squinted; a slight amelioration followed, but the symptoms appeared off and on until death. The first tooth was cut at fifteen months, and only three came afterwards. There was a hernia; and the bowels were, as a rule, confined. It could not stand; it neither laughed, nor recognised anybody, even its mother, and only wept when it had pain in the bowels or was hungry. When twenty months old, it died in a state of marasmus.

The second child was a girl, born twenty-six months after the first. Born miserable, it yet took the breast well, and was given to a healthy wet-nurse. When five weeks old it began to vomit, squint, and was constipated; it never stood up, and for one year all development seemed arrested. There was no spinal curvature nor distortion of the bones. It had five incisor teeth, two above and three below, the first appearing at the eighteenth month. Like its brother, it preferred a dorsal posture, with the head bent backwards. Sensation was blunt, and it scarcely tried to drag away a limb when pinched, nor did it flinch when touched with a cold object. It never tried to talk, and in want of intelligence and power of recognition exactly resembled its brother.

The third child was also a girl, born easily, and reared by the mother. Vomiting, squinting, and emaciation came on at the fifth month. In face it resembled its sister, and was equally devoid of intelligence. At the end of one year it had no teeth, nor any muscular power. We see here three children whose intra-uterine and extra-uterine life was quite alike, in whom, during life, the same diseased appearances were seen, whose constitution was very weak, who in face and conduct bore the stamp of idiocy, and all in such a way that they could scarcely be distinguished. The parents were quite healthy, sober, and in easy circumstances, besides being free from hereditary or acquired defects. What conclusion can

be otherwise formed, than that the cause of the degeneration in the children lay in the consanguinity, which, at first without influence, finally asserted itself owing to repeated blood-marriages?

T. CLAYE SHAW, M.D.

LUSSANA AND ALBERTONI ON THE ACTION OF ALCOHOL, ALDEHYDE, AND THE VINIC ETHERS.

The last three monthly numbers of *Lo Sperimentale* for 1874, contain an elaborate article by Drs. Felice Lussana and Pietro Albertoni on the action of alcohol, aldehyde, and the ethers of wine. To this article was awarded the prize of 500 lire (20*l.*), annually offered by the editorial staff of that journal for the best article published in its pages during the year. It occupies in all 136 pages, and contains the details of 129 experiments on alcohol, 74 on aldehyde, and 14 on vinic ethers, carried out in the physiological laboratory at Padua.

The authors treat of the subject under the following heads:—1. Comparative and pathological action of alcohol in various animals; 2. Absorption of alcohol; 3. Elimination of alcohol; 4. Action of alcohol on the blood; 5. Action of alcohol on the nervous system; 6. Action of alcohol on the circulation; 7. Action of alcohol on animal temperature; 8. Modifications of alcohol in the organism; 9. The thermo-dynamogenic effect of alcohol; 10. Aldehyde; 11. The vinic ethers.

The subjoined summary is taken from the *Giornale Veneto delle Scienze Mediche* for March, 1875.

In their first article, after having studied and demonstrated the analogy of the effects of alcohol on animals with those on man, the authors point out how, among the phenomena of acute alcoholism, disturbance of the intellect prevails in man, while in dogs, and still more in birds, the phenomena of muscular disturbance are most prominent. This is compared with the anatomical fact, that in man the development of the nervous centres of intellect surpasses that of the motor centres, while the reverse is the case in dogs and birds. The centres of intelligence (cerebral hemispheres) bear the following proportions to those of motion (the mesencephalon and cerebellum): in man, 7·7 to 1; in dogs, 5·1 to 1; in birds, 2·8 to 1.

From this the conclusion is drawn, that the action of alcohol on the nervous system is in proportion to the relative development of the nervous centres. And this would appear to be in conformity with the general principle, that the action of a drug on various animals is in direct relation to the greater or less development of the organs on which it specially exerts its influence (Filippo Lussana). The truth of this being admitted, it may be argued that a substance will act in a smaller dose in proportion to the perfection of the organ on which it exerts its elective action. This appears to be proved by the following observations.

1. In man, alcohol affects the intellect when taken in a dose of 0·4 per 1,000 parts of body-weight; but to produce disturbance of the motor function, about 2·40 parts in 1,000 are required. 2. In dogs, alcohol only begins to produce its effects when the dose is in the proportion of 1·5 gramme to 1,000 of body-weight; and the phenomena are referable to the motor functions. 3. In birds also, the symptoms are those of motor disturbance, and are not produced by less than 3 parts in 1,000.

After some general remarks on the action of alcohol on various animal organisms, the authors treat of the ways in which it is absorbed. It appears from their experiments that its absorption is subordinate to its degree of concentration. If this be great, alcohol exerts a strong local irritant action, but a feeble general action; inasmuch as the part congested, deprived of its normal conditions, has its capability for ready and complete absorption impaired. In this way are explained the chronic catarrh of the stomach, and the alterations in the tongue and fauces, which are rather more frequent in liqueur-drinkers than in those addicted to wine. Alcohol of 38° Beaumé burdens digestion if not commenced, and suspends it if it be begun; while small quantities exert a beneficial effect on the digestive process.

The authors give proof of the fact which had already been stated but not demonstrated, that, besides being absorbed by the stomach, especially by the veins, alcohol is also absorbed by the large and small intestines, but in smaller proportions; and they offer a plausible anatomical explanation of this fact, in the presence in the stomach of a layer of epithelium, which renews itself much more rapidly, and which protects the subjacent absorbent layer of capillaries from the irritant action of the alcohol. When mixed with water in the proportion of 12 per cent., alcohol produces local effects on the rectum (hemorrhagic erosions), while it does not affect the stomach when taken in the proportion of 20 parts to 100 of water. From this arise practical deductions as to the most convenient way of administering alcohol in enemata.

If sufficiently diluted, it is absorbed hypodermically more readily and with greater effect than when given by the mouth. It is absorbed by the serous membranes; and still more readily, when properly diluted, by the air-passages.

The study of the absorption of alcohol is followed by that of its elimination. With others, the authors find that alcohol is exhaled in extremely minute quantities by the lungs. The smallest amount of elimination perhaps takes place through the skin; but more probably other products of its transformation, such as acetic acid, are eliminated in this way. The experiments performed by many had shown that very little or no unchanged alcohol escapes with the urine. But experiments continued for several days had not been made; the authors found alcohol in the urine collected for several consecutive days, from two men who had taken it, one in the proportion of 120 grammes, the other of 750 grammes daily. Small quantities only were found. It was found that alcohol did not pass off with the bile, thus showing the groundlessness of the hypothesis that alcohol is capable of dissolving biliary calculi.

The authors conclude that alcohol is eliminated from the system in very small quantities in the unchanged state. On the other hand, according to the experiments of Schulinus and others, much unchanged alcohol is still found in the blood and in the organs four hours after its absorption. The conclusion is therefore of necessity arrived at, that the greater part of the alcohol must undergo transformation within the organism.

As regards the action of alcohol on the blood, the authors regard as exaggerated the opinions of those who consider that it produces much change in the plasma or on the corpuscles. Microscopic examination showed only those changes which might be

attributed to any medium more or less concentrated. They regard changes produced in the blood by alcohol as indirect, that is to say, consequent on the changes in the blood-making organs, but not immediate.

With regard to the action of alcohol on the nervous system, the phenomena of intoxication are examined in their relation to the disturbances of intellect, motion, etc. The action of alcohol on sensation is especially studied. Contrary to the opinion held by many, the authors are led by numerous experiments to consider that, even when marked cerebral phenomena of alcoholism have appeared, sensation is often fairly well preserved. According to them, etherism, or the condition induced by anæsthetics, is to be distinguished from alcoholic inebriation.

In the sixth chapter of their memoir, the authors give a clear description of the action of alcohol on the circulation. Numerous sphygmographic tracings uniformly show how, under the use of alcohol, the line of ascent becomes higher, while in the line of descent there appears a very manifest dicrotism, or even a series of small dicrotisms. This increase of the line of ascent, according to Marey's laws, is to be solely ascribed to diminished blood-pressure; increased impulse of the heart, according to this distinguished physiologist, having nothing to do with it. This conclusion, adopted by Marvaud, Zimmerberger, and others, is not confirmed by Lussana and Albertoni; for, while the said increase of the line of ascent can be without doubt produced by a diminution of pressure, especially by a more ready flow of blood into the dilated capillaries, it cannot, on the other hand, be denied that the line of ascent may be increased by an augmented action of the heart. And in the case of alcohol, say the authors, we have both the one thing and the other; that is to say, there is dilatation of the capillaries, as shown by the redness of skin, sweat, and increased temperature, and there is an increase in the energy of the contractions of the heart; and, perhaps, the dilatation of the capillaries is only a consequence of the additional work on the part of the heart. A computation of the effect produced may be made by examining with the hand the impulse of the heart before and after the ingestion of alcohol, and observing the sphygmographic tracings made in like circumstances; and also, besides the subjective sensations, by comparing the traces obtained under the use of digitalis in a healthy man. Dicrotism is produced when the arterial tension is diminished (through dilatation of the capillaries) and when the ventricular systole is rather strong.

From numerous experiments on the action of alcohol on the temperature, made on dogs, birds, and man, the following conclusions are deduced. 1. In a healthy man, alcohol in a physiological dose does not produce a constant modification of the heat-making process; in the greater number of cases the temperature is lowered, in others it is raised, and in others again it is unchanged. The oscillations, whether upwards or downwards, amount only to a few tenths of a degree (centigrade). 2. In animals (dogs, guinea-pigs, birds) alcohol always lowers the temperature to several degrees below the average, according to the dose.

In order to clearly understand these results, it is necessary, the authors observe, to divide the effects of alcohol into, 1. those which it produces so far as it remains unchanged in the organism; 2. those which may arise from its transformation within the or-

ganism. When alcohol comes unchanged into contact with the tissues, it acts on them in a double manner; that is to say, as a nervine and through its physico-chemical properties. As a nervine it is very powerful, and excites the muscular nerves; and by its physical and chemical properties, it limits the process of organic decomposition, just as it does outside the organism. On the other hand, alcohol, in whatever way it is oxidised, develops caloric and tends to produce an increase of temperature, whether perceptible by the thermometer or dispersed by the cutaneous and pulmonary exhalation.

Alcohol, when absorbed, must be in great part transformed in the animal organism. But what are the modifications which it undergoes? According to Liebig, alcohol is oxidised in the system, carbonic acid and water being produced; he thus represented it to be a calorific material *par excellence*. But to this doctrine the two following facts are opposed. 1. The quantity of carbonic acid in the expired air is diminished after the ingestion of alcohol (Vierordt, Prout, Lehmann, Boecker, and Hammond). 2. The animal heat is generally diminished. On the other hand, the authors observe that, if the combustion of glucose gives equal parts of carbonic acid and water, that of alcohol should give one and a half of water, and one of carbonic acid. The heat developed by the oxidation of alcohol is expressed not only in the temperature of the animal, but also in that which is largely dispersed by the cutaneous and pulmonary transudations.

It is shown to be probable that in one of the phases of its transformation alcohol may furnish acetic acid. On the other hand, the authors exclude the formation of oxalic and formic acids, which may be produced by chemical processes by the oxidation of alcohol.

The next subject treated of is the transformation of alcohol into aldehyde; a view supported by Duchek, but opposed by Lallemand, Perrin, and Duroy. These last named observers showed that aldehyde was not found in the blood of animals in a state of alcoholic intoxication. Aldehyde, however, is a substance capable of producing the phenomena of inebriety when given in a very small dose (0.06 gramme in 1,000 of body-weight). On injecting into the veins of dogs apparently toxic doses of aldehyde, such as are certainly not produced in man, its presence could not be ascertained either in the blood or in the organs, or in the expired air. It was necessary to raise the dose to the proportion of more than a gramme in 1,000 of body-weight. On the other hand, the chemical possibility of an oxidation of alcohol in the blood, and the special phenomena of the first stage of aldehydic intoxication, which have all the characters of alcoholic intoxication, induce the authors to regard as probable the partial transformation of alcohol into aldehyde, in small proportions, and especially in certain cases. Certain experiments, from which it would appear that alcohol injected into the meseraic vein produces more effect than when injected into the jugular, producing the phenomena of anæsthesia, would lead to the suspicion that the seat of transformation of alcohol into aldehyde is the liver.

According to common opinion, alcohol increases the production of mechanical force. But it would seem that alcohol, while it excites the muscular and cardiac forces, also reduces the consumption of material and the organic waste; for the ex-

pired air contains less carbonic acid and there is less urea in the urine. Such a diminution of urea was found in the author's experiments; but they regard it as only apparent and temporary, inasmuch as the degenerations and alterations of the tissues and the atrophy of the organs ultimately show the loss which the organism has undergone.

In the production of mechanical force, alcohol, besides its calorific properties, has a great importance and superiority over similar aliments. With a smaller amount of combustible matter and in less time it produces more force.

Lastly, the authors notice and answer all the objections which have been urged against the opinion that alcohol is an aliment; that is to say, a powerful thermo-dynamogenic, not a plastic aliment. They do not regard as valid the objection that alcohol remains unchanged in the blood and the tissues; or that it passes unchanged, and that traces of its decomposition are not found in the blood and in the secretions: circumstances which are not met with in the case of true aliments. Fat and glucose are good aliments, and yet may remain unchanged in the organism, and pass in part unchanged in the urine, just as albuminose itself may pass. Nor do they recognise the objections, that alcohol produces the phenomena of poisonous but not alimentary substances; that it does not nourish, and does not enter into the composition of the tissues; and that it shows its presence by special effects, while food does not show any appreciable effect on the functions of the organs and on the various apparatus. Alcohol acts not only as a thermo-dynamogenous aliment, but also as a nervine aliment, so far as it remains unchanged.

But it is not enough that alimentation gives a stimulus to labour; it must also furnish material for the nutrition and repair of the tissues. And this is what alcohol does not do. Hence, without a proper supply of nitrogenous food, the muscles and the heart undergo degeneration. Herein lies the explanation of the good and the bad effects attributed to alcohol.

In order to elucidate the question of the transformation of alcohol into aldehyde, the authors studied in detail the action of this substance. After some general remarks on its chemical properties, they show that aldehyde has a preservative action on albuminoid substances, even when diluted with water (3 per 100.) Aldehyde is a substance possessing very powerful action; when given in a dose of six centigrammes for each 1,000 grammes of body weight, it produces marked phenomena in dogs. When injected into the veins, it gives rise to great pain, indicated by cries. This is succeeded, according to the dose, by a stage of excitement, of intoxication, or of anæsthesia, terminating in asphyxia. The state produced presents a great analogy to etherism. The stage of intoxication resembles alcoholic intoxication; but sensibility is more diminished. During this stage the animal breathes quietly, while in a state of coma with abolished sensibility. Beyond this, the animal falls into a state of asphyxia, in which reflex action and respiration are suppressed; the heart, however, continues to beat strongly. The animal may remain in this state for some minutes, and then perfectly recover. But if the asphyxia be prolonged beyond a certain time, death follows.

Aldehyde acts through the stomach much less than through the veins; it has a very powerful irritant and caustic local action, like a caustic alkali. It is

but slightly capable of hypodermic absorption; on the other hand, when inhaled like ether, it readily produces anæsthesia.

The effects of aldehyde on respiration are the following. 1. In a small dose, it at once increases the frequency of respiration. 2. In a large dose, it at first completely suspends respiration (stage of asphyxia); the breathing then returns, but at rare intervals (three or four respirations in the minute); it then becomes more frequent, and regular; and at last is accelerated, being as much as sixty in the minute.

The action of aldehyde on the circulation is very interesting and presents some notable peculiarities, which are illustrated by kymographic tracings taken from dogs under its action, in the stages of excitement, of simple anæsthesia, and of asphyxia. The experiments lead to the following conclusions. 1. In the stage of excitement, there is increase of the blood-pressure, slight alteration in the number of the beats of the heart, great increase of the impulse, and enormous acceleration of respiration. 2. In the stage of asphyxia the blood-pressure is perhaps increased, always so, from the beginning even, in cases where the asphyxia ends in death. 3. The fact which, beyond all others, attracts attention, is the great regularity of the cardiac pulsations in the stage of asphyxia, indicating plainly that the heart beats after the manner of a chronometer, when all disturbing nervous influence is removed. But it is known that the rhythm of the cardiac pulsations in dogs is physiologically irregular. Aldehyde renders it regular and uniform, just as section of the two vagi nerves does in the same animals. From the authors' experiments on this point, the following results are deduced. 1. During the stage of asphyxia and anæsthesia, when the rhythm of the cardiac pulsations is regular, as long as the respiration is suspended galvanism has no effect on the heart. 2. The influence of galvanism of the vagus on the heart reappears at the same time with the re-establishment of the respiratory function; it increases in proportion as the animal recovers from the stage of asphyxia and as the respiration becomes more active. 3. As long as the animal remains under the action of aldehyde, galvanism of the vagus is incapable of completely suspending the cardiac pulsations. Even when the respiration is very frequent, galvanism does not altogether suspend the beats of the heart, but reduces their strength and frequency in dogs, in which, in their normal state, it produced complete arrest of the heart's action. The galvanism of the vagus in animals under the influence of aldehyde always produces a lowering of the blood-pressure.

From these facts, the authors are led to believe that aldehyde acts by reducing and extinguishing the excitability of the vagus nerves, especially their cardiac fibres. In fact, the heart remains insensible to their galvanisation during the stage of complete asphyxia, that is to say, when the respiratory function of these nerves is also suspended; and as respiration is gradually re-established, galvanism of the nerves exerts a greater action on the heart.

With regard to the action of aldehyde on temperature, the following are the conclusions. 1. The effects on temperature are absent, slight, and of short duration, if the aldehyde produce only transient intoxication. 2. Aldehyde lowers the temperature if the intoxication be considerable.

The authors regard aldehyde as a rapid and potent

anæsthetic, well-borne by the organism, but difficult of appreciation in practice.

Finally, the action of the vinic ethers is studied, with the view of distinguishing the effects of alcohol from those produced by the other substances with which it is combined in wine. It is shown that acetic and butyric ethers do not possess any special action, and that cœnanthic ether may assist digestion and stimulate the circulation. A. HENRY, M.D.

MOXON ON INSULAR SCLEROSIS.

The recognition of this disease by English physicians, Dr. Moxon observes (*Guy's Hospital Reports*, vol. xx. Third Series, 1875), will appear singularly slow when its characters shall become more generally known. It will then appear strange that this singular and definite disease has not yet been admitted by the profession in this country, although it has not only constant and characteristic symptoms, but also a peculiar and remarkable morbid anatomy. Of eight cases related by Dr. Moxon, two have been verified by *post mortem* examinations. These are the only two instances on record in which, on this side of the channel, the diagnosis has been made sure by inspection after death.

The symptoms of insular sclerosis* are various in different cases, but still they can be recognised in all cases. Dr. Moxon puts the question: 'When a case comes before one with cerebro-spinal symptoms, are these due to round patches of grey degeneration in the nervous centres, or are they not?' 'This is a question,' he adds, 'which can be answered with certainty, yet the disease is not even alluded to in the nosological list of the Royal College of Physicians, and no English author as yet has given any attention to it.'

The diagnostic characters of insular sclerosis are: (1) A peculiar trembling of the head and limbs during movements, ceasing when the parts are supported; (2) paralytic weakness of the extremities without numbness; (3) rigidity or contractions of the lower extremities; (4) nystagmus (twitching of the eyeballs); (5) little disturbance of power over the excretions; (6) normal electro-excitability; (7) a peculiar affection of the speech, so that syllables are uttered with morbid distinctness of accent; (8) the intellect and control of emotions ultimately somewhat impaired without morbid delusions or morbid moral aberration.

The peculiar trembling is difficult to describe. 'When at rest in bed the patient gives no sign of his malady, but on attempting to rise, when the hands are extended to grasp some object for help, they oscillate with a quickish waving or wagging movement, generally pretty regularly, almost rhythmically indeed. The most evident movement is usually that of flexion and extension at the wrist, as the hand is stretched out prone or semi-prone; but the agitation implicates the whole limb to a less degree.' The legs are involved in this tremulous movement, in the early stages, but ultimately fall into a state of paralysis and stiffness.

These jogging movements, although in the de-

scription they may seem to resemble other nervous tremblings, yet require only to be seen for their differences to be recognised.

The paralytic weakness is more pronounced in the lower extremities, which may ultimately become completely palsied. Constipation occurs from weakness of the abdominal muscles.

The cutaneous sensibility is not diminished beyond an occasional subjective slight numbness. The contractions and rigidity of the limbs are observed chiefly in the lower extremities, and bear a direct proportion to the paralysis. The twitching of the eyeballs is absent during rest, *i.e.*, when the gaze is straightforward and passive.

The affection of the speech is one of the principal features of the disease. The words are pronounced a syllable at a time, slowly and distinctly. This does not arise from paralysis of the tongue. There is no very marked enfeeblement of mind, but there are bursts of unmeaning laughter, or of weeping, out of relation to its proper causes. The impulses are beyond control. There are hopefulness at one time and depression at another, without corresponding variation in the course of the complaint. Ultimately the patient becomes inattentive even to the involuntary passing of the evacuations.

These symptoms are constant in their occurrence, although there may be distinguished three principal varieties, namely cerebral, spinal, and cerebro-spinal.

The morbid anatomy of insular sclerosis shows patches of this grey degeneration scattered broadcast throughout the nervous centres, so evidently distributed indifferently to the structural composition of the nervous mass, that it is at once a cause of natural surprise that there should be any describable exact set of symptoms attached to a change so variously placed. The variation of symptoms is doubtless due to the large number of locations of the sclerotic change. The minute anatomy is evidently that of chronic inflammation; the details of this condition are revealed by the microscope with the greatest clearness.

The elementary items of the morbid change seen in recent specimens are granule-cells, amyloid corpuscles, adventitious fibrous and fibroid substances with nuclei; also disintegrating nerve-fibres or nerve-cells, which latter, however, are always much less affected than the fibres.

In hardened and coloured sections of the spinal cord, cleared with oil of cloves, the changes may be followed with great exactness. The incipient sclerotic patch shows as a thickening and extension of the medullary rays of connective tissue [inter-columnar septa?—*Rep.*] which progressively become largely invaded. This change is rendered visible by its deep red carmine tint among the comparatively uncoloured medullary matter. As the lesion extends the nerve-tubes and their axis cylinders disappear, and the more deeply tinted, altered connective tissue, takes their places. This altered nucleated tissue becomes more and more fibrous.

With this change Dr. Moxon finds an analogy in the subacute arteritis, which he has called 'inflammatory mollities.' The same change, he observes, which renders the aortic coats softer, renders the brain harder. In the one case the new fibrous substance displaces an elastic firm tissue, in the other it displaces a soft medullary structure. Further, Dr. Moxon traces an analogy in this disease to 'cystoid disease' of the bones, as described by Froriep and

* The term 'insular' is here employed as having a more definite meaning than 'disseminated,' and as expressing well the islet-like appearance of *sclérose en plaques*. [It further distinguishes this lesion from what has come to be known as 'miliary sclerosis,' which lesion, however, from its want of structure, would be more correctly designated 'miliary degeneration.'—*Rep.*]

Engel. One common relationship the 'author finds among all these forms of disease, viz., that there is reason to regard these disorders as eruptive. 'Eruptions are not only to be expected in the skin; in small-pox, the inward reflections of the integument show the characteristic eruptions. In syphilis the same kind of action is found in the muscles, bones, etc., in the form of gumma. I believe an essentially eruptive nature belongs to such maladies as I have mentioned with insular sclerosis. By an essentially eruptive nature I mean that the local disease is set up by some agency which is of a specific kind, and is not native in the part in which the change is seen.'

The results of the treatment used in these cases have been most unsatisfactory, no approach to a cure having been made. The details of the eight cases given by Dr. Moxon record the employment, without any benefit, of arsenic, iodide of potassium, bichloride of mercury, nitrate of silver, and electricity.

The drawings which accompany this paper, admirably illustrate and explain the text. This is more particularly true of plate 2, which give details of the changes in the connective tissue of the cord.

W. B. KESTEVEN, M.D.

A LOST ART OF MEDICINE. BY S. D. GROSS, M.D.

An Address delivered before the American Medical Association.*

[We here reproduce in full, with the exception of some preliminary opening matter, the address of Professor Gross before the American Medical Association. After contrasting the present disuse of venesection with the universal employment of it in his boyhood, and asserting that bleeding is emphatically one of the lost arts, the venerable Professor continued as follows.]

How this extraordinary change in sentiment and practice was brought about, by what influence, agency, authority, philosophy, logic, or mode of reasoning, is a matter worthy of brief inquiry. The causes, so far as they are patent to my mind, are mainly four: First, the influence or tyranny of authority, soon passing into more or less extensive fashion; secondly, the indiscriminate employment of the lancet in the days of what has been termed, not inappropriately, the Sangrado practice; thirdly, a more accurate knowledge of the nature and seat of diseases; and, lastly, the use of certain remedies unknown a third of a century ago, but now of general, if not universal resort, in the treatment of inflammatory affections.

I. The influence of authority annually slays millions of human beings. Its pernicious effects upon human life, in its individual and collective relations, are felt in every direction; in the construction of our dwellings, in our habits and occupations, in our dress, in our social entertainments, in our amusements, in our food and drink, and in a thousand other ways. Of its malign influence in our profession examples daily fall under our observation, as the result of pernicious doctrines and practices. Superstition and fanaticism have kept the world in a state of intellectual bondage from the earliest records of society down to the present moment. The spiritualism of the present day has its counterpart in the witchcraft of three centuries ago, fortunately without the hang-

man's halter. Every age has its peculiar absurdities, characteristic of the minds of some of its people. Mesmerism deluded thousands of persons. The metallic tractors of Perkins enjoyed for a time a world-wide notoriety. Homœopathy is still at work in deluding the world. Clairvoyance has many devout adherents. Berkeley, in the middle of the last century, effected many wonderful cures with the aid of his tar-water. For upwards of one hundred years the lancet enjoyed unlimited sway. Everybody was bled. Surgeons, during the last dozen years, have had carbolic acid on the brain as a dressing in wounds and other injuries. Broussais, Cookeism, and the blue pill of Abernethy, each had a reign of at least a quarter of a century. For an equally long period the medical mind of Italy was agitated by the tartar-emetic treatment of Rasori and his followers. Thompsonianism, or the lobelia and cayenne-pepper treatment, is not yet entirely extinct on this continent, although its days were numbered long ago. For nearly a third of a century the doctrine of a change of type in disease has tyrannised over the minds of medical men, and exerted a controlling influence upon their practice. Of all these delusions, the latter, often called Toddism, after Dr. Todd, its author, has exercised the most pervasive and baneful effects upon civilised society. Ensnconing itself behind a false position, it has literally enslaved the medical world, entrapping alike the wise and the foolish, and sweeping over human life with a force equal to that of the fiercest and most destructive hurricane. Unlike the doctrine of sthenic and asthenic diseases of Dr. John Brown, who in the latter part of the last century enjoyed such a wide celebrity as a medical reformer, it assumes that all maladies are of a low type, imperatively demanding the use of stimulants for their successful management. It countenances no half-way measures. The patient must be upheld by stimulants or he must die. Now and then, perhaps, a few leeches may be tolerated, but only in very exceptional cases, where there is not too much depression of the vital powers. Who and what Dr. Todd, the author of this system of medicine, was, it would be needless to inquire. Everybody knows that he was one of the ablest writers and clinical teachers whom this century has produced; but that he was a profound thinker I doubt, and it is well to bear in mind that the class of patients at King's College Hospital, London, of which he had charge, were persons in the lower walks of life, broken down by overwork, privation, and various forms of intemperance, and therefore unable to bear depletory remedies. Such patients as Dr. Todd had are to be found in the wards of every eleemosynary institution in Europe and in this country. It was from a study of this class of cases that this famous man, in an evil hour, deduced the absurd doctrine of a change of type in disease. I say absurd, for if there ever was anything absurd this doctrine most assuredly deserves that name. Who that has any knowledge of the human constitution as it is daily met with in our intercourse with our fellow-citizens, in the various pursuits of life, will lend credence to such an idea; I had almost said to such a slander? I assert, without the fear of successful contradiction, that man's power of endurance in health and disease is not one particle less than it was fifty years ago, when depletory measures of every form were the order of the day; when, in fact, it would have been deemed derogatory to a phy-

* From the *Philadelphia Medical Times*, May 22.

sician's character to let a patient die without the aid of such remedies. The exploits performed during our late terrible war alone are sufficient to settle this question. Never, since man battled with man for national supremacy, were there so many rapid, laborious, and brilliant marches executed in so short a time as there were on both sides of the line. The exploits of the soldiers of Alexander, Hannibal, Cæsar, and Bonaparte fade into comparative insignificance by the side of those of some of our generals. Our labourers, farmers, miners, hewers of wood, carriers of water, mechanics, artisans, and professional men, evince no evidence of decline in muscular power or mental endurance. Our sailors are as hardy a race of men as they were in the days of Sir Francis Drake or Captain Cook.

If we look at the habits and modes of life of the people of the present day, it will be found, if I do not greatly err, that they do not differ in any essential manner, from those of a third of a century ago. The different classes of men and women, in city and in country, live very much as they did in my boyhood, using the same kind of food and drink, pursuing similar occupations and amusements, and exercising as much control over their appetites and passions generally as their fathers and mothers. If there be any differences in any of these particulars, they are certainly not well marked, nor so radical in their character as to diminish, in any material degree, the power of endurance of our people in health and disease. On the other hand, owing to the more extensive cultivation of our soil, the destruction of our forests, the draining of our marshes, and a greater attention paid to the study of hygiene, our people, especially those in the rural districts, are much more exempt from the diseases caused by the noxious exhalations from the earth's surface, so prevalent in newly settled countries, and so pernicious in their effects upon the constitution, than they were in the early days of my white and bald-headed contemporaries.

Do not men during accidents and surgical operations, and women during parturition, often lose enormous quantities of blood, and yet frequently make excellent recoveries? In epistaxis, hæmoptysis, and hæmatemesis, this fluid is often largely poured out, and yet it is seldom that we hear of a person dying from the effects of its loss.

In the face of such facts as these, and a hundred others that might be adduced if time permitted, the doctrine of a change of type in disease must fall to the ground as utterly untenable.

The influence of fashion is not limited to our profession. We all recollect how the crinoline of the French empress, invented to conceal a condition of which most ladies are proud, enslaved the female mind, until every woman, married and single, considered it as an indispensable article of dress. A sofa, however spacious, was hardly long enough for a woman thus arrayed to sit upon. How the fashion has changed within the last six or eight years is familiar to everybody. Now the dress is so narrow as to show the outline of the person, and compel the greatest care in progressing lest the fair wearer should trip and tear her garments. Even diseases occasionally become fashionable. When it became known that Louis XIV. was labouring under anal fistula, the disgusting malady became at once the fashionable ailment of his debauched court. The use of enemata was cultivated as one of the fine arts in France in the time of Molière, who lashed

the faculty without mercy for its follies and extravagancies.

2. The indiscriminate employment of the lancet in former days did much to bring blood-letting into discredit, not only with the better thinking class of physicians, but the public at large. 'We cure the sick,' says Gui Patin, a professor in the Royal College of France, 'when over eighty years old, by blood-letting, and also infants of not more than two or three months, with as much success and as little inconvenience.' Rush, the great champion of this operation on this side of the Atlantic, bled indiscriminately and remorselessly at all periods of life, the young, the middle-aged, and the old; in all kinds of diseases, in the eruptive fevers, in fever and ague, in puerperal fever, in inflammations, in injuries, in hæmorrhages, and even in anæmia, often taking immense quantities of blood, and repeating the operation six, eight, or even a dozen times in the same patient. In short, he and his followers used to bleed in every possible disorder until, in many cases, no more blood would flow, because there was none left. That such a practice would at length work out its own destruction is what might reasonably have been expected. It rang its own knell.

3. That we are much better acquainted with the nature and treatment of disease than our fathers were, is a fact so universally accepted as to require no argument in its support. Our progress in this respect, during the last forty years, has simply been marvellous; and to nothing are we so much indebted for these improvements as to the study of pathological anatomy and histology, and the astounding developments of chemical science.

4. That the treatment of disease has been greatly simplified within the period above specified is familiar to every member of the profession. Homœopathy, by the absurdities of its doctrines and primitive practices, long ago demonstrated to the world that most of its cures are effected spontaneously, through nature's restorative powers alone, while the patient's mind is medicated with the decillionth part of a drop or a grain of medicine; and in comparatively recent years two eminent medical philosophers, Professor Bigelow, of Boston, and Sir John Forbes, of London, showed us, by a series of admirably conducted observations, that certain diseases, as small-pox, scarlatina, measles, typhus and typhoid fevers, are self-limited in character, and therefore not to be materially if at all abridged in their course by any plan or means of medication whatever. A third of a century ago the only so-called depressants, aside from the use of the lancet, were tartar emetic, calomel, and digitalis, the latter of doubtful efficacy in any case, and the first often exhibited without due discrimination. Of aconite and veratrum viride, now so universally employed as antiphlogistic agents, we were totally ignorant. These two medicines, as I shall endeavour to prove by-and-by, although frequently of immense service in the treatment of inflammatory affections, are far, far inferior to blood-letting.

Believing that these are the principal, if not the only, reasons which have led to the abandonment of blood-letting as a therapeutic agent, I propose now to speak of the operation itself, and to point out, first, the classes of diseases to which it is more especially applicable; secondly, the period at which it should be performed to yield the greatest amount of good; and, lastly, its mode of action.

1. Blood may be abstracted in different ways, as,

first, by venesection; secondly, by leeches and cups; thirdly, by incision, scarification, or puncture; and, fourthly, by arteriotomy. The latter operation is so difficult of performance, that few practitioners are willing to attempt it. There are cases, as in violent inflammation of the brain, eye, and ear, in which it is supposed to exercise a peculiarly beneficial influence; but, generally speaking, it is quite certain that venesection, if properly executed, answers every purpose, even in the affections here specified. Similar remarks are applicable to bleeding at the jugular vein, also usually a difficult, and sometimes even a dangerous operation.

The diseases to which blood-letting is more particularly applicable are the different inflammations, acute and chronic; general bleeding being best adapted to the former, and local to the latter. Hippocrates and his immediate followers bled largely in pneumonia and pleurisy; and Sydenham, Rush, Louis, Drake, and many others often took immense quantities of blood in the treatment of these maladies. In acute inflammation of the eye, in robust subjects, bleeding is often indispensably necessary to save the affected organ. Who would hesitate to draw blood largely, under similar circumstances, in acute inflammation of the brain and its envelope, in acute pericarditis or endocarditis, in hepatitis, splenitis, gastritis, enteritis, peritonitis, cystitis, metritis, or orchitis? Stricture of the urethra would be much less frequent if young men labouring under severe gonorrhoea were freely bled at the beginning of the attack. In traumatic affections of the joints, untended with loss of blood or severe shock, the abstraction of blood would often prevent ankylosis, so common under the present system of treatment. The spasm which is so often present in recent fractures, especially in those of the leg and thigh, is more readily controlled by venesection, followed by a hypodermic injection of morphia, than by any other agent I have ever tried.

In chronic inflammation, blood-letting is often an indispensable remedy. Even the most ultra advocate of the stimulant method of treatment will hesitate to employ it when destructive action is gradually but surely undermining structure and function. The abstraction of five, eight, or even ten ounces of blood in chronic pneumonia and pleurisy, especially when associated with severe pain and obstructed respiration, often acts like a charm, relieving suffering and promoting the beneficial action of other measures. In chronic ophthalmia, a few leeches applied to the fore part of the temple, on a line with the commissure of the lids, frequently produce the happiest results. But I will not consume your time by an enumeration of the different cases of chronic inflammation in which blood-letting might be advantageous. What I have said respecting the lungs, pleurae, and eye is equally applicable to other structures, and needs no further elucidation here.

It requires no laboured argument to show that general bleeding can be successfully practised only at the beginning of an acute disease, or during its earlier and gravescent stages. Performed at a later period, when the morbid action is fully established and the affected tissues are inundated with inflammatory deposits, it cannot fail to do harm by robbing the system of the strength so much needed to carry on its vital processes. A copious bleeding at the outset of a violent inflammatory disease is gold; but at its height, lead; or, to express myself more clearly, life in the one case, death in the other.

2. To draw blood to the greatest possible advantage, the quantity should be measured, not by ounces, but by the impression it makes upon the system, as denoted by the pallor of the countenance, the reduction of the heart's action, the softened state of the pulse and skin, the abatement of pain and of other symptoms, as headache, thirst, and restlessness, so universally present in all severe inflammatory attacks. To insure this result in the most speedy and decided manner, the blood should be drawn from a large orifice in a large vein at the rate of two and a half to three ounces in the minute, while the patient is in the erect or semi-erect posture. If the body be recumbent during the operation, a much larger quantity of blood will be required to be drawn to produce the desired effect than when the reverse is the case. While, therefore, the bleeding should be spoliative, care should be taken not to waste the fluid unnecessarily.

To prevent undue reaction after the operation, the bleeding should not be carried to complete syncope, but merely to an approach to this condition, the effect of the operation being carefully watched by a reference to the countenance and the pulse, lest it should exceed the proper limits, and thus do harm instead of good. Violent reaction, however, in any case, after the abstraction of blood, may generally be effectually prevented by a full dose of some diaphoretic anodyne, as ten grains of Dover's powder with one-fourth of a grain of morphia, given immediately after the operation.

Respecting the repetition of the operation, every case must, so to speak, make its own rules. If, after a very copious bleeding, the symptoms rapidly reappear in all or nearly all their former intensity, the operation should at once be repeated, either by reopening the original orifice or by selecting another vein. In urgent cases, as in violent pneumonia, pleurisy, peritonitis, cerebritis, or endocarditis, the operation may often be repeated several times in rapid succession. Under such circumstances the practitioner must, like a wary general, make forced marches, and follow up his successes, not waiting until the enemy has intrenched himself behind his works, but striking heavy blows while he has the opportunity.

But I shall be told that such heroic treatment must inevitably induce serious debility. I grant it will; but in turn I ask, will the disease, if neglected, or permitted to progress, not also cause debility? Debility, perhaps of the very worst kind; debility from over-action of the heart, imperfect supply of nerve-fluid, deranged circulation, impaired function of vital organs, and, above all, from disordered structure from inflammatory deposits? The enlightened practitioner bleeds to save tissue, and to prevent the morbid action from running riot. He repairs strength, when the time for it arrives, by making blood with nutritious food and drink, and thus speedily sets the machinery of life again in motion. The timid, hesitating practitioner, the opponent of bleeding, on the contrary, although he may employ the same restoratives, uses them inopportunistically, and thus allows the debility caused by his treatment to linger for an indefinite time, provided the patient is so fortunate as to survive the first onslaught of his disease.

3. Before I proceed to speak of local bleeding, let us briefly inquire into the mode of action of venesection, or, in other words, how the removal of blood from the system affords relief in inflammatory affections.

This question can be easily answered. In the first place, the abstraction acts spoliatively, diminishing, as the name implies, the quantity of blood, both in the part and system. Secondly, it weakens the power of the heart, and thereby prevents it from sending the blood with the same force and velocity into the suffering structures. Thirdly, it unlocks all the emunctories, and thus promotes secretion. Fourthly, it disorgs the vessels at the seat of the disease, restores the circulation, and places the absorbent vessels in a better condition for the removal of effused matter. And, last, but not least, it favours the action of other remedies, as purgatives, diaphoretics, diuretics, and anodynes.

But it will be said that all these effects may and can readily be induced by the agency of other remedies, as aconite, veratrum viride, digitalis, mercury, and tartar emetic, and that, too, at much less cost to the system. That these articles are powerful depressants, lowering the heart's action and promoting secretion, no one at all acquainted with their virtues will question; but I deny that they exercise the same beneficial impression upon the vessels at the seat of the inflammation. When blood is drawn freely from a large vein at the bend of the arm, from a large orifice, to an approach to syncope, the vessels at the seat of the morbid action are unloaded, often to such an extent that the affected structures do not exhibit any marked difference in colour from those in their immediate vicinity. Thus, for example, in violent conjunctivitis the mucous membrane, the seat of the disease, always, under such circumstances, presents a perfectly blanched appearance, however red and engorged it may have been the moment before. Now, what occurs in the eye, in such a case, may reasonably be supposed to take place in any other part of the body when a patient is bled to a similar extent. In pleurisy, one of the immediate effects of the copious abstraction of blood is a mitigation of the torturing pain which forms so prominent a symptom in this disease, due, evidently, to the diminished calibre of the vessels in the pleura, previously in a state of complete repletion. Has any one ever witnessed such an effect from the exhibition of aconite, digitalis, veratrum viride, or tartar emetic? Never. No matter how these articles may be administered, whether singly or variously combined, they are simply depressants, not depressants and evacuants, as the abstraction of blood from a vein or an artery; there is no blanching of tissue from their use, no unloading of distended and crippled vessels,—indeed, no direct appreciable effect of any kind.

The more recent researches in pathological histology furnish a hint not easily to be mistaken as to the most salient treatment of inflammation in its earlier stages. The leading indication is to restore the paralysed capillaries to their normal tonicity, so as to prevent structural changes in their walls, and facilitate the outward passage of the white globules with which they are choked. It is now well known that in every inflamed area there is marked hyperæmic distension of the blood-vessels, which are often crowded to their utmost capacity with leucocytes, which emigrate through the vascular walls, and, in conjunction with the effused blood-liquor, constitute the most important elements in inflammatory deposits. Hence the object of treatment should be to restore the capillaries to their normal calibre through the artificial induction of contraction of their walls—an effect which can be

brought about, as is daily witnessed in many of the external inflammations, by cold applications, which, as is well ascertained, produce reflex contraction of the vessels. In inflammation of the more deeply-seated organs and tissues, however, this object can only be attained by spoliative bleeding, whereby the affected capillaries are relieved of their contents. In this way only can their tonicity be restored, the further effusion or migration of cell-elements restrained, and the absorption of existing deposits favoured.

Another effect of bleeding, not to be overlooked in this discussion, is the diminution which it causes in the quantity of fibrine and white globules, so remarkably augmented in inflammatory affections. This change, of which I have witnessed many examples, was beautifully illustrated in the case of a young man, nineteen years of age, whom I attended along with the late Dr. Charles Woodward, of Cincinnati, on account of a severe attack of pleurisy. Blood was drawn on three consecutive days, the first bleeding being performed about thirty-six hours from the commencement of the attack. The fluid, amounting to nearly a quart, was not only greatly buffed, but cupped on both sides of the crassamentum, as is shown in the specimen which is still in my possession. At the second operation the fluid was buffed, but not cupped; and at the third it was merely a little sizzly, all pain and active inflammation having by this time disappeared. If such effects follow the use of the articles above mentioned, I am uninformed of the fact.

In leeching and cupping, blood may be taken directly from the affected structures, or indirectly, as when they are practised at a distance from the seat of the inflammation. In the latter case the effect, if carried to a great extent, is similar to that produced in venesection, but generally much more tardy, and therefore, in the main, not so efficacious. When the tissues are divided, as in incisions, scarification, or puncture, the vessels are directly drained of their contents, an operation often followed by great, if not permanent, relief. Illustrations of the efficacy of this mode of depletion are daily witnessed in tonsillitis, in erysipelas, ulcers of the extremities, inflammation of the uterus, and in impending mortification, not to mention other affections.

I have said that general bleeding can be successfully practised only at the beginning of an inflammatory attack, a fact which, I repeat it, is not to be lost sight of in weighing the propriety of such a procedure. Let it be borne in mind also that bleeding is not to be practised indiscriminately, but judiciously, and with proper regard to the condition of the system. Our fathers grievously erred, because they bled in every stage of disease, and in all states of the system, the plethoric and the anæmic, the strong and the weak. Of course there were exceptions, but as a rule this was the practice; the harm, hence, as a natural consequence of the abuse, the abandonment of the treatment. It is within the recollection of all the older members of this Association when the practice of medicine in this country and in Great Britain was limited to the lancet, calomel, digitalis, opiates, and tartar emetic, with gruel and chicken-broth as the chief diet during sickness. I well remember the time when the use of cold water was interdicted as highly improper, especially in the treatment of the so-called eruptive fevers, and when ventilation of a sick man's chamber was considered as fraught with danger. Bleeding

will again come into fashion; history constantly repeats itself, and knowledge runs in a circle. No sensible man can fail to read the signs of the times; but it will not be indiscriminate bleeding, but bleeding performed for a reason, early, and, if need be, freely, to save tissue and promote resolution; in the robust and plethoric, in the young and middle aged, not in the weak, the anæmic, the intemperate, the broken-down, and the decrepit. Practitioners, during the last third of a century, have laboured under a delusion and a dream, from which they are gradually emerging to a sense of their duty; and, although I am not a prophet or the son of a prophet, I venture to predict that the day is near at hand, if, indeed, it has not already arrived, when this important element of treatment, so long and so shamefully neglected, will again become a recognised therapeutic agent, and will thus be instrumental in saving many lives, many an eye, many a lung, many a joint, and many a limb.

But bleeding should not be restricted to the treatment of inflammatory diseases. There are other affections in which it may often be practised with the greatest benefit. In puerperal convulsions, attended with a plethoric condition of the system, copious venesection, promptly followed by the administration of a full anodyne, either alone or in union with chloral and bromide of ammonium, and the application of leeches to the temples and cold to the head, is the sheet-anchor of our hopes, a positive *sine qua non* to success. An experienced and learned member of this Association, Dr. J. Fordyce Barker, recently called attention to this subject in a paper characterised by strong sense and great practical acumen, worthy of his high position as an accomplished gynæcologist. I believe, indeed, that the practice thus set down is the one now generally, if not universally, adopted in the treatment of this dangerous disease, as it was in the time of Dewees and his more enlightened contemporaries. In certain forms of apoplexy the judicious employment of the lancet cannot be too strongly insisted upon, especially in comparatively young and vigorous subjects. Blood in this disease is often taken with leeches when it ought to be taken with the lancet. In asthma, bleeding is frequently of inestimable value, in relieving engorgement and spasm of the lungs, the causes of the terrible dyspnoea so often present in the more aggravated forms of the disease. I recall to mind the case of a lady who was the subject of asthma from the age of fourteen up to that of eighty-six, when she died of pneumonia, whom I repeatedly bled with the greatest advantage in attacks of this kind, which nothing else could relieve. In another case, that of a tall slender gentleman of this city, nearly eighty years of age, in which a severe attack of asthma was complicated with great congestion and slight inflammation of the lungs, the abstraction of less than ten ounces of blood by the lancet led to a speedy convalescence and a complete cure. I verily believe that if this gentleman had not been bled he would have died. In certain forms of phthisis, venesection, judiciously employed, is frequently productive of great benefit. I allude more particularly to the chronic variety of the disease, kept for years in abeyance by great care and a properly regulated regimen. I remember the case of the late Mr. Benjamin Drake, of Cincinnati, a brother of the great professor, who laboured for many years under disease of the lungs, associated with tubercular deposits, the more urgent symptoms

of which were always promptly relieved by the loss of eight to sixteen ounces of blood by venesection. I have always felt satisfied that his life was materially prolonged by this treatment. Dr. Rush was in the habit, as Sydenham had been before him, of bleeding in every case of phthisis attended with a hard pulse, or a pulse rendered weak by the laborious transmission of blood through the lungs. In one of his cases he bled eighteen times in two weeks, and in another, fifteen times in six weeks, with the happiest effect. I do not cite these instances as examples for our imitation, but simply to show that a system borne down by disease may react favourably under what to us of the present day appears as a most heroic measure.

Forty years ago it was customary in protracted labour, dependent upon rigidity of the uterus and the perinæum, to bleed in order to relax the parts and expedite the expulsion of the child. Dewees, in such cases, often took large quantities of blood, especially in young, robust, primiparous women, and occasionally even repeated the bleeding. I well remember that this was the general practice for a number of years after I entered the profession. Why it has fallen into desuetude it would be difficult to tell. The abstraction of blood under such circumstances was always followed by the exhibition of a large anodyne, under the influence of which the labour usually progressed rapidly to a favourable issue, without subjecting the poor woman to undue torture, the danger of lacerating the perinæum, or the necessity of applying the forceps, the use of which is now so common among all classes of accoucheurs.

The plethoric condition of the system so frequently met with in young, robust, pregnant women is generally promptly relieved by the abstraction of twelve to fifteen ounces of blood, and certainly there is no more rational remedy in such circumstances, especially when the redundancy of blood is accompanied by dizziness, vertigo, or headache. Thirty years ago there were few women that were not bled once or twice during uterogestation on account of these symptoms, and I do not know that I ever heard of one that was injured by the practice.

Certain forms of hysteria and epileptic convulsions, dependent upon congestion of the nervous centres and a redundancy of blood in the system, are generally materially benefited by venesection. The relief in the former affection is often prompt and permanent, as I can testify from personal experience.

In the convulsions of infants blood-letting is frequently of signal service. In that form of the disease which follows upon the more severe attacks of cholera, so rife in our hot summer months, and which are manifestly due to over-excitement of the brain, as is shown by the excessive heat of the head, the flushed condition of the countenance, the suffused eye, the intense thirst, the incessant restlessness, the intolerance of light and noise, and the twitching of the muscles, the abstraction of two to two ounces and a half of blood from the arm, in a child from one to two years of age, not only, in many cases, promptly arrests the vomiting and other distressing symptoms, but protects the brain from more serious mischief, and thus places the system in a condition for speedy convalescence.

In what is called hay-fever, a good bleeding sometimes affords immediate alleviation of all the disagreeable suffering incident to that complaint, as dyspnoea, violent sneezing, nasal catarrh, tightness

in the frontal sinuses, headache, and horripilations, or chilly sensations along the course of the spine. I recollect one case which came under my observation many years ago, in a clerical gentleman, thirty-three years of age, who, on being largely bled one Sunday soon after the close of his religious services, was completely cured for that season; and, although the malady recurred during several consecutive summers afterwards, the attacks were always comparatively light.

Cases have been related of great benefit afforded by bleeding in uræmic coma, attended with unconsciousness, dilated and fixed pupils, convulsions, a highly albuminous condition of the urine, and excessive prostration of the system. The blood at first issued feebly, but gradually the stream increased in volume, the blood assumed a brighter hue, the pulse rose, the convulsions ceased, consciousness returned, and the patient finally made an excellent recovery. Several such examples will be found recorded in the *London Medical Times and Gazette* for September, 1874, by Dr. Benjamin W. Richardson, in an article on 'Blood-letting as a Point of Scientific Practice,' and are worthy of special study.

This spring twelve months ago I was requested to visit a lady, a stout, muscular person, in robust health, upwards of forty years of age, who for several years past had suffered much from attacks of headache, attended with dizziness, and occasionally, also, with vertigo. She had tried various remedies without benefit. I suggested bleeding, to which she at once assented, and I drew fully three half pints of blood, with immediate and permanent relief.

Surgeons the world over draw blood after severe reaction in concussion of the brain, to prevent inflammation of that organ and of its membranes. The more plethoric the patient, the greater the necessity for such interference; but the operation should by no means be restricted to this condition, as it is often of great value, if timeously performed, in the comparatively anæmic subjects. It was a case of concussion of the brain that gave rise to the never-to-be-forgotten conversation between John Hunter and his pupil, Dr. Physick, at the time resident physician at St. George's Hospital, London. A man labouring under concussion of the brain from a fall from a scaffold was brought into the surgical ward in a state of utter unconsciousness. 'What shall I do?' said the pupil to his master. 'Shall I bleed him?' 'Bleed him? Bleed him, sir? No, sir! You would kill him outright. Wait, sir, until he reacts, and then bleed him,—bleed him to death, sir.' (Dr. Charles D. Meigs, in *Pennsylvania Hospital Reports*, vol. i. p. 27, 1868). In compression of the brain from fracture, with depression of bone and compression from extravasation of blood, the abstraction of blood by the lancet and leeches is frequently resorted to for the purpose of securing cerebral accommodation, and the practice, as is well known, is often followed by the most gratifying results.

We all have, at some period or other of our lives, experienced the torturing racking pains in the back and limbs, so common in bilious, remittent, and intermittent fevers, as if the body was about to be broken in two, causing us to turn and toss about almost incessantly in search of ease; the head generally at the same time terribly distressed, the skin hot and dry, the thirst intense, and the heart in wild tumultuous motion. Who that has ever been freely bled in such a condition of the system does not re-

member with grateful feelings the prompt alleviation afforded by the operation? The application of a dozen wet cups to the aching back has often speedily transported the poor patient, as it were, from torment into elysium. In gout and rheumatism the abstraction of blood is frequently of immense benefit, if not as a direct curative agent, as a means of relieving pain and paving the way for the more successful action of other remedies. The passage of renal and biliary calculi is often greatly expedited and the suffering caused by it much alleviated by a copious bleeding, especially in stout plethoric subjects.

But I must stop, for my remarks have already been extended far beyond my original design, which was simply to point out a few of the more prominent diseases in which, in my humble opinion, this much-neglected but most valuable therapeutic agent may be advantageously employed.

The fate of blood-letting teaches us an important lesson, not at all calculated to elevate our pride as men intrusted with the preservation of the health and lives of our fellow-beings. It shows what little faith there is to be placed in human judgment, and how sadly we are influenced by authority and fashion in a matter pertaining to the dearest interests of society. If I wished to be satirical, I should say that there are in our profession, as there are, indeed, in every other, two distinct classes of men,—the thinking and the non-thinking. The former, whose number is exceedingly limited, accept every novelty, or great and sudden change, with suspicion, wisely concluding that the one ought not to be adopted until it has been fairly tested by well-conducted observation and experiment, and that the other should not be rejected without sufficient cause. The non-thinking man, on the contrary, eagerly lays hold of every novelty, and seldom stops to seek a reason for his new faith. He adopts it simply because his neighbour adopts it. Especially is this the case when the novelty, whatever it may be, has a distinguished parentage, as when it has received the sanction of a great name, or, perchance, if it had a transatlantic origin. Jones, Robinson, or Brown, in Europe, is always a great man, far greater than his namesake on this side of the water. This non-thinking man confounds progress with improvement. He does not weigh the pros and cons of a question; he takes a shorter route; sees things in a distorted light; assumes for granted what he cannot comprehend, and jumps at conclusions. As the sheep follows the wether, so he follows his master, looks through his spectacles, believes in his infallibility, and swears by his authority. The more the assertion borders on the marvellous, the more greedily does he gulp it, so much easier is it to assume the truth of a proposition or statement than to prove it by sound logical argument and inductive reasoning. I think I am not guilty of exaggeration in what I say. It really seems to me as if we were bereft of our senses. No sooner is a new remedy, an operation, or a method of treatment introduced to notice, than it is puffed into gigantic proportions and endowed with virtues as foreign to it as any other folly under heaven. Certain it is, there never was any greater need for deliberation and reflection than there is at the present time; greater need of asking ourselves, 'Watchman, what of the night?'

SUTTON ON THE RELATION OF ACUTE TO CHRONIC DISEASE.

In an extremely interesting report (*The Pathologists' Report to the House Committee of the London Hospital*, 1875), Dr. Sutton discusses, from the data afforded at that important institution, the relation of the acute to the more chronic changes.

The relation of the acute to the more chronic changes is shown by an examination of the individual cases; this reveals that acute pleurisy had been mostly preceded by chronic or subacute phthisis, by fibroid, emphysematous, or by pyæmic changes in the lungs; by chronic disease in the kidneys, heart, or other parts. Acute peritonitis, preceded by more or less chronic disease in or about uterus, liver, stomach, or other abdominal organs. Acute pericarditis, preceded by rheumatism, by chronic changes in the heart, kidneys, or other organs. And even with respect to the fifty-two cases in which acute pneumonia occurred, the records show that in twenty-four of these, this acute pulmonary change had been preceded in eleven by more or less chronic phthisical alteration in the lung; in six by emphysema; and in seven by fibroid changes in the lung; in three other cases heart-disease preceded the pneumonia; in three, dilated heart and granular kidney, etc.; in three, epithelial cancer of gullet; in seven the pneumonia was preceded by renal disease; in four by atrophy of brain; in one by syphilis; in one by gout; in one by disease of cæcum; one by fatty liver; one by diabetes.

In only three cases was pneumonia the sole appreciable morbid change; and these were in children under the age of five years. And of the forty-eight cases in which acute bronchitis was the immediate cause of death, there was evidence showing that chronic lung, heart, kidney, or other disease, had preceded the bronchitis, or that erysipelas, typhoid fever, or other zymotic disease, had determined it.

These particulars further show, what is already recognised by pathologists, that acute pneumonia rarely kills adults who are free from chronic diseased changes, but in children under five years of age it is often fatal.

In three cases acute nephritis, without appreciable chronic disease, caused death, one case in a child, and two in adults—some of these may have been scarlatinal.

Dr. Wilks years ago pointed out that acute morbid changes are the outcome of chronic ones; and the *post mortem* examinations in your hospital have shown that such is the case, with very few exceptions. The above particulars teach that, excluding cases of mechanical injury and zymotic disease, it is proportionately very rare for an adult, free from chronic morbid changes, to die of acute inflammatory affections. And other data might be taken from the records, showing that this rule holds good, not only with inflammatory, but with almost all, if not all, acute changes in the body, excluding poisoning and violence.

If the records be further examined, they show that some of the persons killed by acute changes were at the time of seizure doing their work or going about as usual—thought to be well, or ailing little—when some incident common to ordinary life occurred, and this, it was thought, produced the disease which, in a few days, or in less time, destroyed life.

For instance, a man, aged sixty, had seemingly gone about as usual, until one day, whilst coming down the stairs of his house, he fell; he was lifted up, and it was then, for the first time, noticed that he could not stand—it was evident he had lost the use of his legs. His friends naturally concluded that the fall had caused the injury, and they brought him to the hospital. He was admitted into one of the surgical wards, and his legs and his bladder were found to be paralysed; acute changes followed rapidly in his urinary organs, and in a few days he died. The coroner's court held an inquiry, and were satisfied that the patient had not been knocked down; and there was apparently nothing showing that he fell because the stairs were in a dangerous condition. It therefore seemed clear that he had not been thrown down by any external cause, but by some destructive change within his own body; and it remained for the pathologist to show why he fell. The *post mortem* examination clearly revealed that long antecedent to the fall the patient had disease in several organs of his body, and although the spinal cord looked healthy to the naked eye, microscopic examination showed that it was very much diseased; chronic changes had greatly altered its texture, and doubtless impaired its function, until at last an ordinary act of life was sufficient to bring about some rapid alteration in this organ, which paralysed the lower extremities.

I may mention another case in illustration. A man was admitted with fractured pelvis. His friends said he was hanging out a clothes line from a window when he fell, and injured himself very much. Consequently they brought him to the hospital. Forty-eight hours after admission he died. The question arose, why did this man fall from the window? The examination of the body showed great atrophy, that is, chronic wasting change, in the brain-convolutions. The remainder of his body seemed healthy. The investigation, therefore, established that slow diseased changes in the brain had preceded the fall. And knowing that persons with such diseased brains are very liable to sudden changes—either apoplecticiform, epileptiform or paralytic, or to other sudden seizures, such as giddiness, violent bursts of passion or impulse, the pathologist was led to conclude that this man had probably been seized with apoplexy, or, at all events, with some disorderly action in his brain at the moment of hanging out the line, and that he fell in consequence—that sudden changes, supervening on chronic, had brought about his destruction. The witnesses subsequently examined before the coroner's court, said that this man intentionally threw himself from the window—that he committed suicide.

I have given the particulars of the above cases, because they illustrate the direction in which the pathologist has to work; and they, together with the details of very many other cases, might be brought forward to establish that persons with more or less chronic disease, yet going about as usual, have been attacked by some acute illness (not fever or violent injury); and such details would, I have no doubt, further establish that even physicians and surgeons, in some instances, have failed during life to find any indications of disease preceding such acute seizure; and, what is still more instructive, pathologists themselves, with the body and all its organs exposed before them, sometimes cannot, by the naked eye alone, discover any morbid change to account for the sudden change, or even the death.

But whilst recognising such facts as undeniable, pathologists know that increasing and better means of investigation are every year more and more lessening the number of these exceptional cases, and convincingly revealing that persons at the time of sudden seizure are not really, but only apparently, well.

If, instead of examining this question of the relation of acute to chronic disease, as above, it be studied deductively, it is known that the body is formed slowly by the external conditions acting on the internal structures. These external agents are the atmosphere, the food, etc.; and the internal are the cells and organs of the body. The external afford the materials, and the internal are the builders; and inasmuch as both act slowly and gradually in constructing man's body, it would seem unreasonable to conclude that they can, whilst unaltered, act otherwise than slowly in disordering and destroying it.

If, however, either the external or the internal agents be not of the ordinary, but exceptional kind, that is, not the average—for instance, the air unusually cold and moist, or hot and moist, the motions in the air too exciting or otherwise, the food not appropriate—then these external conditions, coming into action quickly and abruptly, might, and probably in some persons must, of necessity, produce exceptional, abrupt, more or less rapid, internal changes; and the amount of effect, so to speak, will vary according to the intensity of the cause, and to the self-conservative, healthy resistance within the body itself. Consequently, the disturbance in the body would be great according to the force of the cause, and the degree of departure from health in the sufferer.

And such exceptional external actions do commonly produce rapid catarrhal, diarrhoeal, and other changes, which disturb, inconvenience, or even temporarily incapacitate but do not long disable, much less destroy, healthy persons. The effects, however, become more disabling in proportion as the sufferer is low in health. This variability in effect is, however, in many persons presumable rather than demonstrable.

But if the body be as yet only imperfectly developed, as in infancy, it would seem only reasonable to conclude, what experience confirms, that like any other fabric partly built, its incompleteness will offer less resistance; or if it be decaying, as in old age or in disease, then abrupt changes outside may bring about rapid changes within, and the effects will correspond to the degree of feebleness of resistance. Hence infants, very young children, and aged or diseased persons, commonly die of diarrhoea, bronchitis, and broncho-pneumonia, and other acute affections, but not healthy adults.

It may be thought unnecessary for a pathologist to enter thus elaborately into the relation of acute to chronic disease; nevertheless it may be conceded that the relationship shown above is not generally sufficiently recognised, and yet it ought to be known as a fundamental basis for both the prevention and cure of disorder* and disease.

For prevention, it should be known that not only, as already said, are inflammatory but also abrupt and rapid actions, such as apoplexy, cerebral hæmorrhage, epilepsy, sudden stoppage of heart, rapid

failure of the renal or other organic function, always preceded by more or less slow morbid change in their respective organs; and very many facts might be adduced in evidence tending to show that even outbursts of drunkenness, of crime, and many other disorderly acts common to life, generally are, if not always, preceded by slowly acting deteriorating changes in the body.

Medical men, whose minds are specially trained to follow the co-relation in the consecutive symptomatic phenomena, are able, in many cases, to trace the disorder and the remote causes which have preceded the acute outbursts; but daily observation shows that many minds, not specially trained, generally look for and only recognise the proximate cause. They learn that sudden and great changes in weather, or exposure to wet and cold, commonly produce catarrhal and other bodily disturbance; the facilities and temptations of the public house, or agreeable companionship, lead to drunkenness, or the sight of gold prompts to theft. They may know that great exertion, passion, or fright may be followed by, and seemingly cause apoplexy, epilepsy, or even sudden death; that some exciting social or political event leads to, and seemingly causes, madness, murder, suicide, etc. They may be, to some extent, sensible of the disorder immediately before the outburst; in the same way as they see the storm-cloud in the sky, and subsequently witness its outpour, and trace its devastating effects, but they are unable to track the invisible changes which have slowly collected the storm-forces from afar. But the sudden rapid outpour from the cloud is a part only, in fact often the end only, of the storm. Its immediate fall is determined by some common prominent object or condition; yet the same determining condition may be constantly present, but it only excites the outburst when the remote actions have gathered the cloud.

And this is the case, as every pathologist well knows, not only with atmospheric outbursts, but with those of the human body also; and as long as there are no slow actions deranging it, the various conditions of life, apart from violence, poison, etc., it would seem, do not excite severe attacks of acute disease or destructive outbursts of any kind.

When, however, the body has been deranged by slower changes, many common incidents may excite acute seizures, inflammatory, paralytic, emotional, drunken, suicidal, or other.

Those who are satisfied as to the truth of such conclusions will at once see that, although these acute seizures of all kinds may be to some extent prevented by efforts to remove or counteract the influence of the immediate determining causes, yet, inasmuch as these causes are often common to, and, in fact, seemingly at present inseparable from, ordinary life, the counter efforts must, in the face of the remote causes and chronic deteriorations, of necessity often, perhaps generally, fail.

From many quarters data might be collected supporting the inference that there are always, and must always be, slower, although perhaps, at present, inappreciable changes, leading up to the rapid ones, teaching that incidents, though sudden in time, that is in man's estimate, are not so in reality; pathologists would, however, at once admit that they cannot at present, not even imperfectly in many cases, trace the disposing, intercurrent, remote conditions, which excite and produce rapid injurious changes in the body—but the effect is the foot-print of the cause;

* By disorder is here meant a minor deviation from the normal condition, which in its later and more developed form, is known as disease.

the cast must have a more or less distinct impression and likeness of the mould, the hand can only trace its own movements, and even the storm can only force the wreck and leave it in the form and direction in which it is travelling. The pathologist, therefore, by *post mortem* examinations, endeavours to discover the form of the cause from the shape of the effect. Whilst endeavouring to do this he has to keep in mind that the morbid changes visible to the naked eye, be they in the form of tumours, dilatation of heart, atrophy of brain, or other, are only the gross aggregate morbid products; the cells, fibres, vessels, nerves, etc., with their abnormal changes, seen only by the aid of the microscope, and sometimes only by very high power, are bound up together, and form the diseased mass. It is the alteration in these cells, fibres, vessels, etc., which impair and arrest the function of the diseased organs; therefore, microscopical examinations of the minute constituents are indispensable for the ascertainment of the changes which destroy life. And microscopic, chemical, and other minute examinations have already shown that these minute changes are sometimes present when the part looks healthy to the naked eye; thereby not only indicating that the minute alterations are the primary ones, but enabling us to understand why the chronic changes are for awhile very insidious or even latent, because the changes at the outset, being very minute, cause little or no disorder in the action of the organ affected, and still less in the working of the body generally.

When, however, the diseased changes have become much more widely disseminated and the organ largely involved, its function becomes greatly impaired, and then it becomes manifest that there is organic disease.

The pathologist knows what an enormous aggregation of altered microscopic parts make up an atrophied brain, a diseased liver, or a contracted lung, etc.; consequently he is well aware that the eye must be long trained, by microscopic and other aids rightly to appreciate these changes and trace their relations.

Reason, too, must be long trained to track the morbid changes back to their origin, and make known the successive transformations which have produced the abnormal conditions, and diseased structures.

If this be done, the knowledge gained will frequently indicate what measures should be adopted to prevent the occurrence of disease.

If the cure of disease be next considered, it is to be kept in mind that the pathologist, whilst tracing the cause from the effect, or *vice versa*, tracing the disease downward from the cause, endeavours to ascertain what are the actions within the body as well as outside, which produce and constitute disease. And in doing this he learns what should be done to prevent the morbid changes. He, moreover, estimates what changes must take place within and without the body to restore it to health; or if cure be impossible, owing to the nature of the disease, what changes should be promoted to counteract and retard the progress of the disease, relieve suffering, and delay death. The following abstract from Cullen defines clearly the position and application of pathology in the cure of disease.

'From pathology,' he says, 'you know the deviations from a healthy state which the body is capable of; that from a comparison of physiology and pathology you know the several changes that are necessary to be made for restoring the body from a morbid to

a healthy state; that is, the several indications, as they are called; and, lastly, that from the knowledge of the powers which act upon the human body you know the means by which disease may be avoided, and health restored when it is wanting.' [Vol. I., p. 444, *Works of Wm. Cullen*, 1827.]

It is therefore evident that the cure of disease must necessarily be promoted by the ascertainment of its cause. For centuries this has been recognised, in proof of which I may be allowed to give the words of one renowned for his great learning and research, whose work itself evidences that his statements are the expression of the teaching of ages. Burton (*Anatomy of Melancholy*, p. 52, vol. i.) says:

'It is in vain to speak of cures or think of remedies, until such time as we have considered of the causes; so Galen prescribes, and the common experience of others confirms, that those cures must be imperfect, lame, and to no purpose, wherein the causes have not first been searched, as Prosper Calennius well observes in his tract, *De Atrâ Bile*, to Cardinal Cæsius, insomuch that Fernelius puts a kind of necessity in the knowledge of the causes, and without which it is impossible to cure or prevent any manner of disease. Empiricks may ease, and sometimes help, but not thoroughly root out; *sublatâ causâ, tollitur effectus*, as the saying is; if the cause be removed, the effect is likewise vanquished.'

Not only is this the teaching of the past, but also of the present age; in evidence of which I may be allowed again to quote the words of a standard work, on the *Science and Practice of Medicine*, by Dr. Aitken, vol. i. p. 4, which says:

'Pathology dictates the maxims of rational practice. It is in the nature of the science of pathology that it always ought to be in advance of our certain knowledge regarding the treatment of disease. It is the basis of rational medicine; for it is rational to know the nature of a disease in order, 1. To enable us to prevent it; 2. to understand the principles which ought to guide us in the management of it.'

In concluding this report, it may be well to mention the history of medicine shows that for two thousand years there have been two methods employed for the study of physic, the dogmatic, or pathological, and the empirical. The advantages of both have been much discussed, and physicians have been divided on their respective merits. But both having been continued for centuries is demonstrative of their utility, and it is now fully recognised that pathological investigation and reasoning indicate the principles for the treatment of the sick, whilst the physicians and surgeons test their worth empirically, *i.e.* by practice.

ANATOMY AND PHYSIOLOGY.

CAULET ON THE EFFECT OF LIME AND MAGNESIA ON THE ALKALINITY OF THE BLOOD AND URINE.—The known power of mineral waters, holding the bicarbonates of lime and magnesia in solution, to render the urine alkaline, formed the starting-point of the present investigation (*Bulletin Général de Thérapeutique*, April 30, 1875.) From the fact that the urine of patients taking such waters may be deprived of its earthy salts by boiling and filtration without thereby losing its alkalinity, the author concludes that the latter must be due to soda and not to the alkaline earths. The small proportion of carbonate of soda which is present in those waters

has been experimentally shown to be inadequate to give an alkaline reaction to urine which was previously acid. The effect must therefore be attributed to the earthy salts themselves. How is it brought about? Artificial calcareous waters were prepared by dissolving known quantities of lime and magnesia in water saturated with carbonic acid under pressure. These solutions were administered to four healthy individuals, and were found invariably to render their urine alkaline; the alkalinity persisting after the urine was boiled and filtered. It was further ascertained that the proportion of earthy salts in the secretion was not increased by prolonged use of the waters; thus furnishing another proof that its alkalinity was not due to the elimination of the earthy compounds through the kidneys. The question which next presented itself for solution was this: granting that the alkaline reaction of the urine is due to excess of soda, is this excess absolute or relative? In other words, is there a positive increase in the proportion of soda eliminated, or a diminution in the free acids of the urine? The answer to this question is an indirect one. Increased alkalinity of the blood must precede alkalinity of urine. How do the carbonates of lime and magnesia produce the former result? Are they absorbed into the blood? The author concludes that they are not; or, if they be, it is in proportions so minute as not appreciably to modify the alkalinity of the circulating fluid. This conclusion rests upon the following experimental basis. The vegetable salts of the alkali-metals are converted into carbonates in the blood, and eliminated as such, rendering the urine alkaline. Now considerable doses of acetate and lactate of lime, citrate and lactate of magnesia, were found to exert no influence at all on that secretion; whence M. Caulet concludes that they were not absorbed. Accordingly he argues that if the earths do not increase the alkalinity of the blood directly by being absorbed, they must do so indirectly, by increasing the acid juices poured into the stomach; and this must be regarded as the remote cause of the 'sodic alkalisation' of the urine during the employment of calcic and magnesian waters. In conclusion, he directs attention to some differences of clinical effect between the carbonates of the alkaline earths and those of the alkalis.

1. Owing to the very indirect way in which the former operate, their effect on the urine is less constant and certain than that of the latter.
2. The alkalinity caused by the former makes its appearance more slowly, and lasts much longer, than that produced by the latter.
3. The former probably exercise an alternative action analogous to that demonstrated by Dr. Parkes in the case of liquor potassæ.
4. There is every reason to believe that the former are superior to the latter in the treatment of gravel, calculus, and other troubles incidental to the uric acid diathesis.

E. BUCHANAN BAXTER, M.D.

STEINER ON THE ACTION OF CURARE.—J. Steiner (*Reichert and Du Bois-Reymond's Archiv*, 1875, Heft 2, p. 145), during his residence at Naples has investigated the action of curare upon some of the lower animals. His results may be summed up thus.

1. In fishes curare paralyses—*a*, the central organ of voluntary movement; *b*, the respiratory centre; *c*, the motor nerves.
2. This action varies with the time, and corresponds to the letters *a*, *b* and *c*, where *a* represents the earliest effect.
3. Paralysis of the motor nerves occurs much later than in the highly organised amphibians, birds and mammals;

still the passage to the fishes is not abrupt, but occurs gradually through animal species on both sides.

4. The late occurrence of the paralysis of the motor nerves increases with the size of the fish in spite of a larger dose.
5. In the electric rays the paralysis of the electrical nerves occurs much later than that of the motor nerves.
6. The other rays and hag-fish are affected in the same way by the poison as the freshwater fish.
7. The cause of the phenomena of 3 and 4 is quite unknown.
8. Paralysis also takes place in crabs, which, however, occurs relatively later than in the fish.
9. In snails, starfish, and holothuria, only paralysis of the central organ of voluntary movement occurs.
10. In the medusæ it appears, from very few observations however, that the poison exerts no influence.

W. STIRLING, D.Sc., M.B.

BOWDITCH ON THE VASO-MOTOR NERVES.—Dr. H. P. Bowditch (*Boston Medical and Surgical Journal*, January 21, 1875), presents the following as the most probable explanation of the demonstrated facts respecting the functions of the vaso-motor nerves.

The smooth muscles of the blood-vessels are kept in a state of moderate tonic contraction under the influence of a plexus of nerve-fibres and ganglion-cells, closely surrounding and imbedded in the vascular walls. This tonic contraction is increased by an impulse coming from the central nervous system through the 'vaso-constrictor' nerves. That these 'vaso-constrictor' nerves are in a state of constant activity is evident from the fact that vascular dilatation follows their section. This vascular dilatation is, however, not permanent. After ten days or a fortnight, the vessels assume their original dimensions. To explain this, we must assume that after separation from the central nervous system, the nervous plexus surrounding the vessels gradually acquires a higher degree of activity than it before possessed. The 'vaso-dilator' nerves act by inhibiting the activity of the ganglion-cells in the nervous plexus around the vessels, thus causing a diminution of the vascular tonicity. These nerves are not in a state of continual activity, as is proved by the failure of the vessels to contract when the nerves are divided. They are therefore to be regarded, not as constant, but occasional antagonists of the vaso-dilator nerves.

J. MILNER FOTHERGILL, M.D.

DAMMANN ON INJECTIONS OF WATER INTO THE ALIMENTARY CANAL OF DOMESTIC ANIMALS. After relating the well-known observations of Dr. Gustav Simon and Alfred Hegar on the human being, Professor Dammann (*Deutsche Zeitschrift für Thierheilkunde, etc.*), details various experiments in which he injected water by the rectum which led him to the following conclusions.

1. In dogs, water may be sent *per rectum* through the great intestine nearly half way into the small intestine.
2. In swine, water may be sent through the whole of the great but only a small amount into the small intestine.
3. In horses, water may pass into the colon, and also into the great cæcum, but never into the small intestine. He points out the value of these facts in the treatment of obstruction and diseases of the lower bowel.

J. G. MCKENDRICK, M.D.

RECENT PAPERS.

On a New Method of Analysing the Urine. By Dr. Byasson. (*Bulletin Général de Thérapeutique*, June 15.)

PATHOLOGY.

SUMMERS ON THE NATURE OF DIPHTHERITIC MEMBRANES.—Dr. T. O. Summers (*Nashville Medical Journal*, April, 1875) from original observations, arrives at the following conclusions.

The membrane of true diphtheria is fibro-cellular. The fibres are well-marked, and deposited from organisable lymph. The cells are more or less modified; intermingling with and feeding on these is found the fungoid vegetation.

There are two kinds of exudation—one in which the fibrinous nidus and the fungoid vegetation are seen in the membrane as soon as it is deposited upon the mucous membrane of the fauces; another in which the fungoid vegetation appears first without any fibrinous nidus, and then dies out of itself, or, upon the subsequent appearance of the fibrinous deposit, goes on proliferating with it, as in the first kind of exudation.

The *contagium vivum* is communicated to healthy individuals through the introduction of the germs of the fungi by inoculation.

In all cases in which the *contagium vivum* is communicated to healthy individuals, the exudation is of the second variety, in which the fungoid vegetation first appears.

The virulence of the disease is indicated by the character of the exudation. If only the fungoid vegetation appear, the disease is perfectly tractable, and yields promptly to treatment. But when the poison has entered the system, and so impressed itself upon the elements of the blood as to cause fibrinous exudation, then comes the tug of war. The fibrinous nidus may form on any inflamed or congested surface, and the fungoid growth be elaborated at a fearful rate.

COURJON ON PARAPLEGIA IN POTT'S DISEASE.—Paraplegia in Pott's disease is by no means always due to the pressure exercised by the displaced vertebrae on the medulla. On the one hand, the displacement may be considerable without there being any paraplegia; and on the other, paraplegia may exist without any deformity. Paralysis is most often to be explained by an inflammation of the medullary meninges, as numerous researches have shown, amongst which those of MM. Charcot and Michaud must be quoted. This pachymeningitis takes its rise in the dura mater which covers the diseased bones. The exudations first gain the nerve-pairs on their exit from the vertebral foramina, and in this way those violent pains without paralysis, which are often observed in patients attacked by vertebral lesions, are explained. At a later period the medulla itself is attacked, and the lesions of the funiculi are the cause of the different troubles which arise with regard to motility, sensibility, and the nutrition of the limbs. M. Courjon has thoroughly studied in his thesis (*Thèses de Paris*) the progress and varieties of paralysis in Pott's disease, and has in its course taken note of the principal points of this disease, considered as to its causes, symptoms, diagnosis, and treatment. While for the most part the deformities produced by the displacement of the vertebral bodies are absolutely incurable, it is not so with the medullary lesions, of which the progress may be impeded, and in some fortunate cases the principal symptoms removed.

RECENT PAPERS.

- Reflections on Several Cases of Floating Kidney, and on the Treatment of that Affection. By Dr. Fournier. (*Bulletin Général de Thérapeutique*, June 15.)
 Solitary Tubercle of the Dura Mater. By Dr. Bozzolo. (*Annali Universali di Medicina e Chirurgia*, May, 1875.)
 On some Congenital Alterations of the Organ of Hearing. By Dr. Mori. (*Ibid.*)
 On the Morbid Changes occurring in the Blood-Vessels of the Brains of the Insane. By Dr. Ringrose Atkins. (*Dublin Journal of Medical Science*, June, 1875.)
 Two Cases of Apoplexy of the Pons Varolii. By Dr. Joseph J. Brown. (*Journal of Mental Science*, July, 1875.)
 Report on the Morbid Conditions found existing in a Case of Acute Insanity ending fatally within a week. By Dr. Ringrose Atkins. (*The Journal of Mental Science*, July, 1875.)
 On Malposition on the Aorta due to Rickets simulating Aneurism. By Dr. George Balfour. (*Edinburgh Medical Journal*, July, 1875.)
 Two Cases of Tumour of the Brain Contrasted. By Dr. T. S. Clouston. (*Edinburgh Medical Journal*, July, 1875.)
 A Study of Tubercle. By David Foulis. (*Glasgow Medical Journal*, July, 1875.)
 Anomalies of Dental Eruption. By Dr. Magitot. (*Archives de Tocologie*, July, 1875.)

MEDICINE.

MAHOMED ON SCARLATINAL CONVALESCENCE.—In the *Practitioner* of July, Mr. Mahomed contributes a paper on scarlatinal convalescence, from which we extract his remarks on albuminuria in this condition.

During the second week, in favourable cases, the frequency of the pulse becomes reduced, and the character assumed is that of the normal, soft, and full type. In some cases, however—and these require great care and close watching during their convalescence, they occur most frequently in children—the pulse, instead of becoming diminished in frequency at the end of the second week, continues rapid; the other symptoms may be apparently favourable, the temperature having fallen to 99° or even lower; the child, however, will frequently look pale, and not be very bright, and his stools are not unfrequently green and offensive. These indications are of the greatest value practically, for they foreshadow coming danger, which may be guarded against by warmth, milk-diet, and gentle purgatives. Constipation or chill would now produce the most disastrous consequences. If such a case as this go on in the usual way, it will be found that about the eighteenth to the twenty-second day his pulse will suddenly fall in frequency and become perhaps abnormally slow, often as low as 40 per minute, having previously been stationary at 110 or 120 for some days. The physician will probably hail this alteration with delight, and possibly report a great improvement to the friends; but his confidence will be misplaced if he rely on it as a sign of improvement, and he will be doomed to disappointment. The sudden fall in rapidity of the pulse at this crisis means sudden increase of arterial tension, and of this it is the surest sign; the pulse will be felt at the same time to become hard and full, the vessel remaining distended during diastole, the expansion being slow and sustained, and the artery assuming a whipcord or rigid character, so that it can be rolled under the finger. At the same time it may become somewhat irregular, a phenomenon which always occurs coincidently with a change of pressure

in the arterial system. This condition requires no sphygmograph to detect it, although it was first recognised by its aid, but reveals itself to the educated touch of any careful observer.

If now the urine be examined, it will be found to be either albuminous or about to become so, the condition of pre-albuminuria existing. Before proceeding to describe this condition, it may be noted that this period of the disease, namely, from the eighteenth to the twenty-second day, is the time when albuminuria or some inflammatory lesion is most likely to occur.

The writer has shown elsewhere (*Trans. R. Med. Chi. Soc.* 1874), in a paper on the etiology of Bright's disease, that the presence of a poison in the blood, such as scarlatina, erysipelas, gout, lead, and many other conditions, or imperfect assimilation of food, as in functional derangement of the liver, or increased effete material in the blood, as in pregnancy, all give a tendency to albuminuria by altering the relation between blood and tissue, and producing high tension in the arterial system; in all of these conditions the excretory system is overtaxed, and if either the skin or the bowels be prevented from performing their excretory function by either chill or constipation, the condition is intensified, increased work is thrown on the kidneys, and albuminuria is produced. To these predisposing conditions may be added two others which have also been mentioned as causes of albuminuria; the one, damage to a large portion of cutaneous surface, as from a burn or acute eczema, a cause which is present to an extreme degree in scarlatina; the other, cold to the surface, a cause which very readily operates on scarlatinal patients on account of the delicate condition of their new skin. We have then in scarlatinal convalescents four important conditions, each or all of which may produce albuminuria; first, a derangement of the liver; second, destruction of cutaneous surface; third, a tendency to chill; fourth, the presence of a specific blood-poison.

It is impossible in a paper of this description to enter fully into a discussion of the forms and causes of albuminuria following scarlet fever; a short reference to each may, however, be attempted. They are presented here in a tabular form, and the actual cause of the albuminuria, the condition of urine, the state of arterial tension, and their etiology also indicated.

ALBUMINURIA.

FORM	CAUSE	CONDITION OF URINE	ARTERIAL TENSION	ETIOLOGY
ARTERIAL	Transudation from Malpighian tufts.	Quantity diminished. Paraglobuline. Albumen, blood.	Always high.	Blood-poisons. Constipation.
VENOUS.	Transudation from tubular plexus.	Quantity normal. Albumen. No paraglobuline or blood.	May be low. Usually high.	Chill. Intense fever. Heart or pulmonary disease, etc.
ARTERIO- VENOUS	Transudation from dilatation of capillary vessels.	Quantity increasing. Albumen. Often blood.	Diminishing towards recovery.	Chronic condition of either preceding causes.

Albuminuria may be regarded as the symptom of certain conditions which, if allowed to continue,

would produce disease of the kidney and other excretory organs, but the disease does not in the first instance arise in those organs. Before describing these conditions, it will be as well first to explain two indications that will frequently be referred to. The sphygmographic signs of high tension are as follows: a sharp point at the apex of the tracing, representing an increase in the percussion element of the pulse; a prolonged sustension of the tidal wave, indicating a prolonged and laboured systole of the heart; a slow collapse of the artery, and the ability of the pulse to overcome considerable pressure, as shown by its power to raise the lever of the sphygmograph when a pressure much greater than usual is employed.

Under certain conditions, the writer has shown that a constituent of the blood may be present in the urine when no albumen or any other abnormal element can be detected; no reaction is obtainable with the nitric acid test when most delicately applied; no blood-cells can be discovered by the microscope; no colouring matter of the blood can be seen by the eye or detected by the spectroscope. Its presence is invariably associated with high tension in the pulse; it usually precedes, accompanies, or persists after arterial albuminuria. It is detected by the use of the guaiacum test for blood, which is employed as follows: a few drops of urine are placed in a small test-tube, a drop of tincture of guaiacum is added, and then a few drops of ozonic ether; after agitation the ether rises to the top, and if the abnormal element which is believed to be paraglobuline be present, a blue colour is produced, which is extracted from the mixture by the ether, and forms a brilliant blue upper stratum.

By the assistance of these indications we are able to classify albuminuria into three distinct forms, which have the following clinical histories.

The mildest form of *arterial albuminuria* will be found to occur almost without any constitutional symptoms about the end of the third week. Most frequently the patient may have been a little constipated (one day passed without an action of the bowels is usually sufficient to produce it), and it will be found that his pulse is harder than normal; if a tracing be taken, well-marked signs of high tension will be found; he will have slight subconjunctival oedema, the first sound of the heart will be a little prolonged and perhaps reduplicated. On examining the urine, a blue reaction more or less intense will be obtained with the guaiacum test; no albumen may be present if the case be taken sufficiently early, but on the following day it will appear. If the urine have been measured and the quantitative analysis for urea be performed throughout the illness, both will now be found somewhat decreased. Beyond these symptoms, however, there will be none; the patient will express himself as feeling quite well, and there will be neither nausea, vomiting, headache, pain in the loins, nor increase of temperature. A sharp purgative administered in this stage will almost invariably remove all the symptoms; the paraglobuline, the albumen, and the high tension will all disappear in a few hours.

This, however, is a sketch of the most favourable form; a form which is due almost entirely to constipation, and can be easily overcome. The first cases observed by the writer were all of this mild nature, and they gave the impression that albuminuria could be checked immediately if taken early enough; but during the recent epidemic it was

soon found necessary to modify this opinion. The variability of the disease at different periods and during different epidemics has always been a matter of common remark. The albuminuria which now prevailed was of a much more severe type, but it nevertheless proved amenable to treatment, and out of a large number of cases observed at the Fever Hospital, not a single death occurred; all except one, who was a gouty subject and a hard drinker, entirely recovered before leaving the hospital, and only one went on to dropsy, and this only existed for two or three days.

This more severe form appears to be due to a larger dose of poison; constipation has little or nothing to do with its production, the bowels being often relaxed at the time of the attack. Such cases partake more of an 'inflammatory' nature, and begin with rigors, a rise of temperature up to 102° or higher, and the urine becomes distinctly bloody almost on the first day, and is greatly reduced in quantity. These patients frequently have vomiting and not seldom diarrhoea; they look puffy in the face, and have a good deal of constitutional disturbance; in fact, they all have the well-known symptoms of acute nephritis. The urine will frequently continue bloody for several weeks, and at the same time more or less scanty; the secretion gradually increasing in quantity, and arterial tension coincidentally diminishing as the condition improves. With milk-diet, sweating in hot packs, purgatives, and flannel next the skin, they all recover sooner or later. These cases, like the others, all exhibit high arterial tension from the commencement, and the desired object is to reduce it.

Venous albuminuria also occurs at this period; it is due to a chill of the skin. This occasionally might be the exciting cause of the inflammatory form just mentioned, but such cases come under the head of arterial albuminuria. More frequently chill or exposure to cold gives rise to a much milder form, undistinguishable from the first set of cases, except that, while the urine may be highly albuminous, it never gives any reaction with the guaiacum test or contains blood in any form. The tension of the pulse is increased, but not so markedly so, and sometimes not at all; no complaint is made of any constitutional symptoms. Such cases as these are frequently curable, if detected at their commencement, in an hour or so by the hot pack; the urine passed immediately before the patient is placed in the pack being albuminous, while immediately afterwards it is normal; the arterial tension at the same time being rapidly reduced. Other cases, again, are of longer duration, especially if the condition have become well established before treatment is commenced. So susceptible are scarlatinal convalescents to chill, that two cases came under the observation of the writer in which albuminous urine was secreted immediately the patients left their beds, the secretion becoming normal as soon as they returned to them, the change being instantaneous; the experiment could be repeated several times in one day. In these cases the pulse-tension was hardly perceptibly increased, and no reaction with the guaiacum test could ever be obtained with their urine.

Exactly similar results have been obtained from observations made on the effect of cold bathing in the healthy subject. In these cases temporary albuminuria resulted after ten or fifteen minutes' immersion, although actively engaged in swimming; a similar

result to those previously reported by Dr. Johnson. The urine in these cases gave no reaction with the guaiacum test, and the arterial tension was not increased; the arteries becoming contracted, the pulse smaller and varying with respiration, showing congestion of the right heart; the veins were turgid, albuminuria evidently resulting from transudation from the venous capillaries; slight cough and increased bronchial secretion indicated also slight temporary congestion of the lungs.

The same characteristics occur in the pulse and urine when albuminuria occurs in the course of a severe fever, or is secondary to heart-disease or bronchitis. In these cases it is undoubtedly due to venous congestion; blood only appears in the urine in very severe examples of these conditions, and then owing to rupture of venous capillaries from pressure.

The last form has been designated *arterio-venous albuminuria*. It is not due to any active congestion, but to chronic dilatation of the renal capillaries after acute congestion, from their inability to recover their normal tone, thus permitting a prolonged drain of albumen from them; blood may or may not be present. The cause may have been removed, and the arterial tension having been gradually reduced may have become normal, the urine being increased in quantity and being sometimes excessive, although albumen is still present.

There is a peculiar characteristic of the urine which frequently occurs in connection with this state; it is found after the disappearance of chronic albuminuria, where the patient is anæmic, or in other cases in which anæmia has occurred after scarlet fever, but without albumen being present in the urine, although the patient looks 'puffy,' and from his general condition albuminuria would be suspected. In these conditions, after adding nitric acid as before described to form a lower stratum in the test-tube, a violet or purple ring is found almost immediately above the acid. If to a specimen of this urine an equal quantity of strong hydrochloric acid be added, the whole agitated and allowed to stand for some hours, a deep blue colour is produced with a deposit of indican. This symptom is frequently found in idiopathic anæmia, peritonitis, and other conditions attended by anæmia and exhaustions. It has also been described as resulting from diseases of the spinal cord. It has been stated to be due to disintegration of blood-corpuscles, but its pathological significance has not yet been definitely determined.

HALL ON THE TREATMENT OF CHOLERA.—In the *Practitioner* of July, Surgeon A. R. Hall, of the Army Medical Department, gives an account of the success that has attended the treatment of the cold stage of cholera by the hypodermic injection of chloral-hydrate. He says: 'The fact, that the Government of India attach so much importance to the matter as to have published letters from Mr. Higginson, the civil surgeon of Kheri, in Oudh, and myself, concerning it, in their official gazette of Feb. 14, 1874, is also very satisfactory. These reports were published in a letter in the *Times* of August 15, 1874.

'During a continuous service of upwards of eleven years in Bengal, I have seen a good deal of cholera. I have suffered from it myself; and I think it may be of interest to describe, as tending to throw some light on the pathology of the disease, what particularly struck me in my own symptoms, and the conclusions I have drawn from them and from the writings of various authors.

'While doing duty with troops who were suffering from an epidemic, in April, 1864, I had a severe attack. The first thing that I specially noticed was the entire absence of all griping, colic, or straining, while the purging was going on. The stools seemed to be expelled by the contraction of all the muscular fibres of the intestines themselves, without any assistance from the abdominal muscles. I noticed that my pulse was hard and then small before it ceased to be felt at the wrist. But what struck me as curious, was the fact that my heart was beating forcibly all the time! The absence of pulse, therefore, did not seem to me to be caused by exhaustion of the heart's power, or a tendency to syncope.

'The cramps in my arms and legs were very torturing. There was total suppression of urine for about twenty-four hours. My voice at first was rather shrill and squeaky, before it became what is called sepulchral. The rice-water evacuations were ejected at frequent intervals, and the vomiting was almost incessant. I craved for liquids, and drank cold water and soda-water for a time, only to expel them with a spasmodic rush. I did not experience any nausea; when the fluid reached the stomach it seemed to be expelled by the rapid contraction of the muscular coats of that organ. I am thankful to say no stimulants were given to me, and I lived through the attack. I retained my consciousness the whole time, and recovered without much secondary fever.

'After this experience, I naturally took more interest than ever in studying the disease. The writings of Dr. Brown-Séquard seemed to me to lead to the conclusion that irritation of the vaso-motor portions of the sympathetic nervous system would account for many, if not all, the symptoms of the collapse of cholera. When I read Dr. George Johnson's 'Notes on Cholera,' I felt convinced that the asphyxia produced by the contraction of the pulmonary arterioles was apparently the chief condition to be overcome.

'We have then, apparently, to deal with some morbid influence which acts with fearful violence for a time. It often kills rapidly, but if the patient do not succumb, he gets well pretty quickly. The question is—What state is he actually in, and what can be done to keep him alive?

'Dr. Brown-Séquard sums up the result of his well-known experiments by asserting that the parts supplied by the sympathetic, when that nerve is divided (or paralysed), show: (1) Dilatation of blood-vessels; (2) Afflux of blood; and (3) Increase of vital properties; while galvanisation of the nerve is followed by (1) Contraction of blood-vessels; (2) Diminution of blood; and (3) Decrease of vital properties. It seemed to me therefore to be more probable that the sympathetic nerve is in an irritated state, rather than paralysed.

'I think that the different symptoms of the collapse of cholera lead to the conclusion that the morbid influence (whatever it may be) exercises a stimulating action on the vaso-motor portion of the sympathetic nervous system, producing increased heart-action, contraction of the muscular walls of the arteries, and, at first, augmented blood-pressure. The increase of arterial tension is first shown by a hard pulse. This afterwards becomes small, because there is a very little blood in the artery. I am sorry that I have not been able to obtain sphygmographic tracings of the pulse as yet. Dr. Parkes has pointed out the frequency of copious micturition of limpid urine at this early period. This flow has been shown

by Traube to be intimately related to high arterial pressure; but when the state of muscular activity passes on into cramp-like spasm, there is a total suppression of urine. This is probably due to complete closure of the renal arterioles.

'A sensation of burning heat at the epigastrium is often experienced in collapse. This may be due to a hyperæmic condition of the solar plexus. The condition of irritability of the sympathetic produces, through its vaso-motor nerves, spasm of the muscular coats of all the arteries of the body. The heart contracts forcibly, but cannot dilate normally, its muscular walls being spasmodically affected. This is a point that I wish to bring prominently forward. I believe that the irritation and hyperactivity of the vaso-motor portion of the sympathetic is so great, that the inhibitory or dilating action of the vagus on the heart is not able to control it.

'We have then, I presume, the following conditions: At first, increased blood-pressure, caused by the heart beating strongly, forcing the blood through contracted arteries. As the disease advances, the heart, though contracting forcibly, gets very little blood from the lungs, and therefore has only that little to send into the arteries. The systemic veins are gorged with blood, which occasions the blue colour of the face and surface of the body.

'The peculiar choleraic voice is one of the first symptoms that attracts attention in this disease. One thing seems evident, that this peculiar voice does not depend on deficiency of air entering and leaving the lungs. If a cholera patient be desired to take a deep breath, he can generally do so. A considerable quantity of air is heard rushing into the thorax, and if one's hand be put to the mouth, the breath can be felt coming out pretty strongly, only very cold. I cannot help thinking that we must attempt to explain the existence of this voice by the effect produced on the larynx by the abnormal condition of the nerves which supply its muscles.

'Violent cramps in the voluntary muscles are felt in most cases, which occasion the real pain in collapse. Dr. C. B. Radcliffe, in *The Dynamics of Nerve and Muscle*, says that contraction of muscle is a temporary death. It is, in fact, an imperfect *rigor mortis*, which condition is seen strongly marked in persons who die in collapse. The cramps in cholera may therefore be caused by the cutting off of the blood-supply to portions of the muscles by the contracted state of their arterioles.

'The vomiting is apparently due to spasm of the coats of the stomach caused by the hyperactivity of its nerve supply; and the evacuations from the bowels may be the result of exudation from the distended venous radicles of the portal system, which partake of the general venous engorgement; for Niemeyer has shown that when the arteries are contracted there is venous distension. I am aware that many facts have been observed, which go to prove that the rice-water fluid is the result of secretion and not of transudation. The celebrated experiments of Moreau bear particularly on the point. Lately, in this country, Dr. Lauder Brunton has been carrying out a series of experiments on the nerves supplying the intestines, some of which he was kind enough to allow me to witness, for which I take this opportunity of thanking him. But time will not permit me to go into this question here, and I beg, for the present, to leave it an open one. It is clinically interesting to know that the purging is not accompanied by any of that pain known to us as

colic. The intestinal activity of cholera is absolutely painless. The packed condition of the intestines (in which they are seen drawn back to the spine, and occupying much less space than usual in the abdomen), described by Sir William Gull and Dr. Baly, is probably produced by great contraction of all the longitudinal as well as the circular fibres. But I look upon the vomiting and purging as of secondary importance. The worst cases, those of so-called cholera sicca, appear to die of asphyxia before much fluid can be thrown out by the stomach and intestines; for though rice-water fluid is found in the intestines in these cases after death, there is nothing like the quantity that is often expelled during life in other and less severe cases. According to my idea, the morbid influence is expending its force most fatally on the heart and lungs, through the vaso-motor centres, and to these our whole attention must be directed.

It is also a matter of clinical fact that in the worst cases there is absolute suppression of secretion of bile and urine. These facts point to the spasmodic condition of the arterioles of the liver and kidney. The blood is shut off from the liver-cells and Malpighian tufts. The gall-bladder, however, is usually found full, or half full, after death. The general condition of spasm of the involuntary muscular system has probably involved the circular fibres of the bile-duct and so prevented the bile (which had been secreted since solid food was last taken, and before the state of spasm had set in) from being poured into the intestines. The urinary bladder is generally contracted to the "size of a walnut," as has been remarked.

It has also been observed that abortions frequently occur in pregnant women when attacked by cholera, and that the foetus has been often expelled alive, proving that the miscarriage was not caused by the death of the embryo. Of course, the contracted state of the mother's blood-vessels may cause the death of the child in time by stopping the utero-placental circulation; but I fancy that the uterus often contracts before this is brought about.

One of the chief peculiarities about this disease is, that while such fearful disturbance is going on in the body, the intellect is generally unaffected. If there were really a tendency to syncope, we should probably oftener see loss of consciousness.

I now beg to bring forward what I consider to be the right principle on which to treat collapse of cholera. Presuming the morbid state against which we have to contend to be one of asphyxia, caused by spasms of involuntary muscular fibres, due to a condition of hyperactivity of the sympathetic nervous system, the logical inference distinctly points to the exhibition of a remedy calculated to neutralise this condition. Such remedies are to be found in the class of agents which directly depress the activity of the muscular fibres of the circulatory apparatus.

In a previous paper, I have pointed out that it is of no use to give medicines by the mouth, as they are generally immediately rejected. I suggested the hypodermic injection of pure sedatives, which, if given in sufficient quantities, actually do produce syncope by their palsyng action on the heart. When I wrote that paper, chloral-hydrate had only recently been discovered. At that time I had never seen chloral-hydrate, and did not know what its real therapeutic action was.

Surgeon-Major Collis (of "The Buffs") and myself

performed a number of experiments on bull-frogs (about $1\frac{1}{2}$ lbs. in weight, and twelve inches in length) with digitalis and other drugs, which produce an effect on the circulation through the nervous system. We found that chloral-hydrate caused the death of the frogs, with the heart in the most complete diastole, thereby proving that it is one of the most powerful vascular sedatives that we possess.

It so happened that I had not an opportunity of trying the hypodermic injection of a pure sedative till August, 1873. I then had a soldier in collapse under my care. I dissolved ten grains of chloral-hydrate in 100 minims of water, and injected this quantity under the skin of the arms in four different places. The record of this case will be found in the *Indian Medical Gazette* for November, 1873. Reaction was established in about five hours, and the patient made an excellent recovery, without any inconvenience from the punctures.

In September, 1873, Mr. Higginson, the civil surgeon of Kheri, in Oudh, treated nineteen cases on this plan, and only two died (one of whom might probably have been saved if the native doctor left in charge had carried out his instructions). The letters preceding this paper refer to seventeen of these cases. These results speak for themselves. Of course a great many more cases will be required to prove the efficacy of this treatment, but at all events it is a good beginning.

I attach great importance to the strength of the solution used; one part of chloral-hydrate to ten of water. If it be stronger than this it will probably not be absorbed into the blood, and only cause ulceration, or perhaps sloughing. Mr. M'Reddie, the civil surgeon of Hurdni, in Oudh, reported unfavourably on the hypodermic method, in the *Indian Medical Gazette* for December, 1872; but he dissolved twenty grains of chloral in sixty minims of water, which was much too strong.

I cannot here go into the subject of the secondary fever. I believe this to be a condition closely allied to heat apoplexy, and will only say that it would appear probable that the activity of the muscular walls of the blood-vessels is followed by a period of relaxation. This really is a partial paralysis, the result of exhaustion. In this dilated condition of the systemic arterioles, I have found quinine and a combination of stimulants and tonics to be the best treatment.

J. MILNER FOTHERGILL, M.D.

PEPPER ON LATENT CIRRHOSIS OF THE KIDNEY.—At the Pathological Society of Philadelphia, March 25 (*Philadelphia Medical Times*, June 5,) Dr. William Pepper presented the heart and kidneys from a case of latent Bright's disease. The patient was a young woman, aged twenty-seven years, whose appearance always indicated full health, with some tendency to plethora. It was not known that she ever had scarlatina, and no symptoms had ever attracted attention to the kidneys. For some years past, occasional dyspnoea had been noticed, which grew much more severe last autumn, when it became constant, and much increased on exertion. She also had occasional violent paroxysms of orthopnoea, resembling attacks of spasmodic asthma, and usually at night, and, on several occasions, hæmoptysis occurred. The secretion of urine was abundant, of light colour, and rather low specific gravity; it was carefully examined several times, but no albumen or tube-casts were found. The breathing was very frequent, and there were frequently signs of marked

pulmonary congestion. The action of the heart was habitually rapid, but was readily kept under control by moderate doses of digitalis. Physical examination showed a considerable degree of hypertrophy, chiefly of left ventricle. While under treatment, several severe nocturnal paroxysms occurred; and, finally, after having enjoyed an unusual degree of comfort for several weeks continuously, she was seized with symptoms of intense dyspnoea soon after retiring one evening, followed in a few minutes by insensibility, purplish suffusion of face, and death.

At the necropsy, extreme cirrhosis of both kidneys was found; the organs being reduced to about one-third their normal size. There was intense venous congestion of all the abdominal organs. The lungs were deeply congested, but no apoplectic clots were found. The heart was much hypertrophied, the walls of the left ventricle being especially affected. The valves were competent, but the leaflets of the mitral were thickened and somewhat too rigid. The right ventricle was not much enlarged, and its full expansion seemed checked by a delicate band, which passed from about the middle of the septum to the outer wall. There were traces of old pericarditis.

Dr. J. H. Hutchinson remarked that some years ago he had exhibited two kidneys, which had undergone even greater contraction than had taken place in those just presented by Dr. Pepper, the smaller weighing only seven drachms. The patient, an unmarried woman of about thirty years of age, was admitted into his ward at the Pennsylvania Hospital for a slight disease of the skin. Shortly afterwards, most distressing dyspnoea set in, and continued until the occurrence of death, in less than twenty-four hours after the seizure. Owing to an oversight, the urine was not examined during life, but that which was removed from the bladder after death was found to be highly albuminous. Dr. Hutchinson afterwards learned, from the gentlemen in whose house she had lived for some time as a servant, that she had apparently always enjoyed good health, and that she had at no time presented symptoms which could be referred to disease of the kidneys. He had known of other cases in which distressing dyspnoea appeared to be dependent upon cirrhosis of these organs and was almost its only manifestation.

Dr. De F. Willard said, with regard to the absence of albumen from the urine, he was called last summer to a girl who had not passed urine for thirty-one hours, and was suffering from uræmic convulsions. He removed a small quantity by the catheter, but found, on examination, that it was non-albuminous, and without tube-casts. The girl died in three hours. He made a *post mortem* examination, and found both kidneys extremely contracted, both smaller than those presented by Dr. Pepper. He re-examined the urine drawn by the catheter very carefully, and found neither albumen nor casts. He could learn little of her previous history (she was a prostitute), but it was said that she had Bright's disease. He had previously seen specimens of urine in which a single examination had failed to point out the presence of albumen, which was subsequently found present.

Dr. James Tyson remarked that the cases just quoted illustrated the form of Bright's disease, in which it was well known that albumen is present in minimum amount, and, according to some excellent authorities, sometimes altogether absent.

HYDATIDS OF THE LUNGS IN AUSTRALIA.—In the *Melbourne Medical Record* of March 6 is an unsigned article, which says: In no country, with the exception of Iceland, is hydatid disease so frequently met with as in Australia. Prior to 1861, when Dr. Hudson, now of Ballarat, drew attention to it, little was known concerning it. In 1861, when this gentleman published a paper on the subject, but few cases had been met with in the hospital. Since then it has become one of the most common diseases of the colony. It was, however, common on the sheep stations up the country amongst the blacks, partly from eating raw or underdone mutton and drinking unboiled water from water-holes frequented by sheep-dogs and other animals. Great numbers fell victims to this disease in the early days of the colony. Drinking the water of pools containing hydatids, and eating hydatid meat, are not the only sources of disease. The animal may be seen attached in some ponds to the plants growing in them. I have seen them on the common water-cress. Eating this vegetable when it grows in ponds or ditches frequented by sheep, pigs, or dogs, is always attended with risk.

Few patients can trace the period when they first took the hydatid into their systems. In one case the patient, six months before he began to suffer from pain, followed by swelling, had drank, after walking a long distance, from a pool in which the body of a sheep which had died of hydatids was rotting. He had two companions with him; but although they drank quite as freely of the water as himself, neither suffered. In a girl aged twelve years, eighteen months before seen she had, at a school treat, drank water from a paddock where sheep were grazing. The swelling had existed six months when she came under notice. Most of the cases of hydatids occurring among children living in Melbourne can be traced to drinking water from ponds; girls seem to be much more liable to hydatids than boys, although the reverse might be expected, from the latter being about more than the former; later in life males are more liable than females. It is, then, nearly invariably met with among men who as shepherds, stock-riders, etc., are liable to drink water containing hydatids. Whether it takes six months or more for the hydatid to increase to such a size as to produce troublesome symptoms, I am unable to say. The growth will depend very much on whether the patient is living in a damp situation or a dry one; cold and wet seem invariably to cause it to increase more rapidly than a dry atmosphere. Placing the patient in a warm bath will cause the hydatid to increase in size, while a hot-air bath, by causing copious perspiration, will reduce it, if the patient abstain from drinking. The lungs stand next in liability to the liver. Taking a hundred cases, the relative liability would stand thus: liver, seventy; lungs, twelve.

RAWLINS ON TUBERCULAR DISEASES IN THE NEGRO.—In the *Medical and Surgical Reporter* for May 29, Dr. James T. Rawlins writes as follows. As the fatality of diseases affecting the coloured race is alarmingly upon the increase, I think a few remarks upon this subject not inappropriate. Of all diseases, the great scourge is pulmonary tuberculosis. Until within the last decade, tubercular affections were not more frequent in the coloured than in the white race; indeed, the amount of white blood seemed to be the predisposing element, the African enjoying a certain

degree of immunity. But within my observation, the contrary seems now to prevail; especially is this the case in the acute type of disease. I have never seen a case of acute miliary tuberculosis in a white; with the mulatto the type is generally more rapid than with the white, galloping consumption, as it is frequently called. But in the black we encounter the acute miliary type, *sui generis*.

Contrary to Niemeyer's rule, that this disease generally follows old caseous deposits, it appears to result from any depressing cause, and in many cases the patient has never been known to have had any organic disease. Especially is this the case with young females, about the age of puberty. The eruption of the tubercle appears to be essentially a neoplasm.

The physician is generally consulted in these cases for some trivial derangement, as the attention is seldom early attracted to the lungs. I have found neither cough nor hæmoptysis among the first symptoms, and have seen patients die without having had either. It is a hard thing for the laity to understand, that a person can die of consumption without cough or hæmorrhage. The early symptoms are sometimes obscure, and the general appearance of the patient has much to do in the formation of a diagnosis. The two characteristic symptoms, the most striking and disproportionate to all the rest, are the rapidity of pulse and frequency of respiration. From the general diffusion of tubercles, percussion often fails to elicit an observable dullness. You find, upon auscultation, a suppression of the vesicular murmur; with small, dry, crackling râles throughout the lungs. In several cases I have failed to observe any increase of temperature until near the termination of the disease, which appears to be from asphyxia, due to the general obstructive diffusion of tubercles.

J. MILNER FOTHERGILL, M.D.

DALLY ON THE METHODICAL TREATMENT OF HYPOTROPHY AND ATROPHY.—Dr. Dally in his recently published pamphlet on this subject (Masson, Paris) endeavours to show the existence of a rational physical therapeia as well as of a biological therapeia. He writes: 'In the same way as the physical properties of organised bodies hold a considerable place in biology, the agents of the same order should hold a corresponding place in therapeutics.' The author endeavours to establish the following propositions concerning the diminution of the trophic properties of the tissues. In practice it is important, in the first instance, to distinguish the trophic troubles, and specially the hypotrophies, which are dependent on a primary acute or chronic change in the nerve-centres; and then those which have their starting-point in the primary and direct lesion of the peripheric organs. The first are generally incurable; but they may become much lessened when their seat is primarily cerebral, or when they take on in the medulla a rapid acute progress which can be modified, especially if located near the outset of the symptoms. The hypotrophies of peripheric origin, traumatic, rheumatismal, professional, anæmic, etc., are, on the contrary, generally curable. In the treatment of hypotrophies, the physical agents—manipulations, heat, electricity—may be successfully applied whenever they reach the primitive lesions. They act by creating local intermediary conditions, favourable to the internal processes of nutrition, and not by artificially stimulating the special nerves which set the circulatory and secretory apparatus to work. If even this

action be real, it soon exhausts itself and remains sterile. Chemical agents do not appear to have any other action than to modify the digestion favourably when necessary. Biological agents, such as kinesis and gymnastics, bring on, when possible, natural functional synergias; the struggle between innervation and of the peculiar function of the elements which seem necessary to the trophic actions, or at least favour them. The systematic and combined employment of these different agents give the physician a powerful influence in directing the functions of nutrition.

RINTELN ON RECOVERY FROM INTUSSUSCEPTION AFTER SEPARATION AND VOIDANCE OF FOUR INCHES OF SMALL INTESTINE.—Dr. Rinteln, of Oeynhausen, reports the following interesting case under the heading of 'Gleanings from Practice,' in the *Berliner Klinische Wochenschrift* for May 24, 1875. The patient, a delicate and spare woman, aged sixty, actually lived ten years after her recovery, and enjoyed fair health. The attack was preceded by diarrhoea and colicky pains. Then came symptoms of obstruction of the bowels, and vomiting of fecal matters, some of which were in lumps, which leads Dr. Rinteln to infer that they were formed in the small intestine. After ten days rather active medication, under which she grew worse, resort was had to opiates, and absolute rest to the bowels. At the end of three weeks her life was despaired of. On the twenty-fifth day, however, she greatly improved. On the preceding night there were five or six feculent stools, mixed at first with blood and mucus. In one of these about four inches of dark gangrenous small intestine were found. From this time her recovery was rapid, and it must have been complete, since she never afterwards had the least difficulty in passing motions. [Similar cases in younger subjects have several times been noted. By the courtesy of Mr. Hutchinson, the reporter saw one such in the practice of Dr. Stutter, of Sydenham, in which a boy passed nearly a foot of small intestine, and recovered. Rinteln's case is, however, interesting on account of the patient's age.—*Rep.*]

W. BATHURST WOODMAN, M.D.

RECENT PAPERS.

- Chronic Enlargement of the Tonsils in their Relations with Certain Spasmodic Phenomena. By Dr. Beverly Robinson. (*New York Medical Record*, June 19.)
- Glosso-Labio-Laryngeal Paralysis. By Dr. Duchenne (de Boulogne). (*Gazette des Hôpitaux*, July 3.)
- On the Cause and Prevention of Typhoid Fever in Schools. By Dr. J. L. Leconte. (*Philadelphia Medical Times*, May 29.)
- On the Dropsical Form of Heart-Diseases. By Dr. G. Sée. (*La France Médicale*, June 23.)
- Critical Reflections on the Expectant Method of Treatment in Acute Articular Rheumatism. By M. Dujardin-Beaumez. (*L'Union Médicale*, June 26.)
- On the Diabetic Form of Phosphaturia. By M. Joseph Tussier. (*Lyon Médical*, June 27.)
- Three Cases of Acute Articular Rheumatism presenting Anomalous Symptoms and requiring an Unusual Course of Treatment. By Dr. James Duncan. (*Dublin Journal of Medical Science*, June, 1875.)
- Functional Forms of Heart-Diseases or Incipient Heart-Diseases. By Dr. G. Sée. (*La France Médicale*, July 3.)
- On the Prevention of Putrefaction and the Destruction of Contagia. By Dr. Dougall. (*Glasgow Medical Journal*, July 1.)
- Note on a Case of Sudden Death from Syncope, which occurred during the Operation of Thoracentesis, with Remarks on Primary Gangrenous Pleurisy. By M. Ernest Besnier. (*L'Union Médicale*, June 29.)

Practical Notes on Oxaluria. By Mr. Saundby. (*Edinburgh Medical Journal*, July, 1875.)
 Notes on Pneumonia, based on Sixty-four Cases of that Disease Observed in Private Practice. (*Glasgow Medical Journal*, July, 1875.)

SURGERY.

ANNANDALE ON KNOCK-KNEE.—In the *Edinburgh Medical Journal*, July, Mr. Annandale describes a new operation for the cure of knock-knee as follows. On the 3rd of March last, a little girl aged six, was brought to me from Glasgow, on account of a serious deformity of her right leg. Mechanical means had been employed for two years with the object of relieving the condition, but without success, and the deformity was steadily increasing in severity.

A careful examination determined an aggravated form of knock-knee, and it was found impossible, in any position of the limb, to bring the leg into a straight line with the thigh, the head of the tibia forming a considerable angle with the condyles of the femur. The femur had a distinct bend inwards and forwards about the junction of its lower and middle thirds, and the condyles of this bone were much more oblique in their direction than in the natural condition.

The adductor muscles were somewhat contracted, and the distortion was such that the patient walked with difficulty. The left limb was well developed and natural in position. A study of the case convinced me that the oblique position of the condyles, the result apparently of the bending of the shaft of the femur, was the principal obstacle which was preventing the tibia and leg being brought into a line with the thigh, and it therefore seemed to me, that if this obliquity could be removed, the deformity might be cured or very much relieved.

Two ways of removing this obliquity suggested themselves. The first was to divide the shaft of the femur at the point where bent; the second to remove an oblique slice of the condyles. The latter operation would be attended with more risk than the former, because it necessitated the incision of the knee-joint. But some little observation decided me to adopt the latter proceeding, for I felt sure that it would be more effectual than the former, and I trusted that the risks of opening into the joint would be counteracted by the careful use of the antiseptic treatment.

The consent of the child's parents having been obtained, I operated on March 16 in the following way.

An incision, about five inches in length, was made along the inner aspect of the knee-joint, the articulation opened into, the internal lateral ligament cut across, and the patella and its ligament being drawn outwards, the crucial and external lateral ligaments were also divided. An oblique slice was then sawn off from the condyles of the femur, the tibia not being interfered with. After the removal of this slice of bone the leg was readily brought into a straight line with the thigh; and a drainage tube being inserted into the cavity of the joint, a few sutures were applied, and the limb placed on a wire splint, in the straight position. The whole operation was performed under the antiseptic spray, and the usual antiseptic dressing was applied to the wound.

Some suppuration of the wound followed the opera-

tion, but this gradually ceased, and on March 24 the discharge was so slight that the dressing was changed only once in two days. On April 25 the wound was quite superficial, and on the 29th of this month the wound was soundly healed. On May 6 the patient was allowed to get out of bed, the joint being supported by lateral splints, which were removed daily to permit of passive movements of the joint being made. On May 30 the splints were entirely removed and the patient allowed to bear weight on the limb. At this date the limb was perfectly straight, and of equal length with the opposite one. The lateral mobility of the joint was very slight, and very much as in the natural condition. Flexion and extension were very limited.

On June 5 I placed the patient under chloroform, and forcibly bent the knee to rather more than a right angle, and I also moved the joint freely, so as to break down the adhesions which had resulted from the operation. No bad consequences followed this forcible bending of the knee; and two days after, the patient was again going about the ward with the help of crutches, and able to bear weight upon the limb, the mobility of the joint being decidedly improved.

Remarks.—I am not aware that this or any similar operation has been before practised in cases of knock-knee, but the successful result obtained in the case reported encourages me to recommend this method of operating in certain aggravated cases of the deformity which have resisted the division of the biceps, tendons, or other tense structures, and carefully-applied mechanical treatment.

The employment of the antiseptic treatment in this and similar operations I consider most valuable, and I must confess that it was my confidence in this treatment which led me to freely incise so important a joint, and to carry out the proceeding described.

J. MILNER FOTHERGILL, M.D

MARTIN ON THE TREATMENT OF SOME OF THE COMPLICATIONS OF STRICTURE OF THE URETHRA.—In a clinical study of the subject, M. Martin arranges his remarks (*Archives Générales de Médecine*, April, 1875) under three heads.

1. Strictures impassable, or difficult to overcome.
2. Strictures complicated with infiltration of urine, or with urinary abscess.
3. Strictures complicated with urinary fistulæ.

Under the first head he states what he means by an 'impassable' stricture, one through which it is impossible by any means to pass an instrument into the bladder. He divides the treatment of this first group of cases into two modes, gentle and forcible, quoting Dupuytren in favour of trying gentle means before resorting to force.

He reviews the subject of bougies, and quotes Civiale and Guyon, who recommend that the ends of bougies (gum elastic) should not be too tapering, but that on the contrary, the bougie should offer resistance sufficient to straighten it when bent back with the finger. It should accommodate itself to the course of the stricture, and not double back. He mentions an ingenious plan of M. Curtis, of collodionising the end of the filiform bougie. He dips the end in collodion to give it resistance, and to preserve any curve given to it. M. Guyon makes great use of bougies, and gives various directions to the ends.

The rigid instruments (metallic or whalebone) employed in England (?) and America, the author says are likely to cause false passages.

M. Guyon employs wax bougies, and claims two advantages for them. First, at the moment of withdrawing the bougie, a patient suffering from retention will often pass urine more easily than before. Secondly, immediately on withdrawing the wax bougie the surgeon may pass the stricture with a fine bougie.

Of the influence of pressure made by a wax bougie against a stricture, he states that M. Guyon says the pressure of the urine from behind, which was powerless alone to separate the sides of the stricture, succeeds when anterior pressure has been made in addition.

M. Guyon also thinks that wax bougies are more capable than any other instruments of moulding themselves on all the points of the anterior aspect of the stricture, and even of penetrating into its anterior orifice, and thus of modifying the form of its antechamber. This mechanical action of the wax bougie is only applicable to cases in which the bougie is pressed against the anterior aspect of an impassable stricture.

On the subject of the length to which sittings should be carried, he says M. Guyon seldom prolongs a sitting over a quarter of an hour, or half an hour at most. He proceeds very gently and slowly, stopping directly the canal bleeds. He repeats the sitting daily, or every other day, according to the sensitiveness of the patient, and always preceding the filiform bougie by the wax bougie.

When the bougie has entered the stricture, and cannot be advanced, Messrs. Voilemier and Guyon agree in advising that no force be used, that the instrument should be withdrawn in three or four hours, or as soon as it causes pain.

Under the head of 'Results of Treatment' the author states that, out of nearly 400 cases of stricture treated at the Necker Hospital by M. Guyon, only three cases required external urethrotomy without a conductor. He again lays stress upon the superiority of gentle over the forcible treatment of stricture.

In speaking of accidents and complications of treatment, the author admits that now and then the collodionised bougie enters a fistula or an old false passage, but that without any other accident than slight pain or a little fever.

The indications of the treatment of stricture, complicated with infiltration of urine are, to give exit to infiltrated fluids, and to re-establish urination.

The author thinks that Dr. Caron, a pupil of M. Flaubert of Rouen, is the only author who has satisfactorily laid down rules for making the incisions of urinary abscess and infiltration of urine; and he describes deep median incisions carried well backwards to avoid burrowing.

In speaking of the re-establishment of urination, the author reviews various opinions, and states that M. Guyon is in favour of waiting fifteen days, or even three weeks, before trying catheterism. He advises that during this time the surgeon should attend only to the treatment of the infiltration, and not till the incisions have nearly healed should attempts be made to pass an instrument.

When M. Guyon has determined to make trial of an instrument, he methodically explores the urethra and ascertains the number and direction of the strictures, and then passes in a bougie, and leaves it in. In the numerous cases of old dense strictures, intolerant of dilatation, M. Guyon performs internal urethrotomy, with M. Maisonneuve's instruments.

Omitting penile fistulæ, M. Martin divides perineo-scrotal fistulæ into three groups:

1. Simple fistulæ without much induration;
2. Fistulæ with considerable induration;
3. Numerous old and hard fistulæ resisting milder methods of treatment.

The author states that the first group may be cured by the simple restoration of the calibre of the canal; yet he has not seen any of these cases cured at the Necker Hospital by dilatation *pur et simple*. Commonly it was necessary to follow up dilatation with the *sonde à demeure* or by caustics. In other cases the toughness and length of the strictures compelled resort to other means, and above all to internal urethrotomy with Maisonneuve's apparatus. He has several times seen this operation followed by excellent results.

In the second group of cases it is necessary to divert the course of the urine to accomplish cicatrisation of the fistulæ.

The treatment consists in either leaving an instrument in the bladder or repeated catheterism or cauterisation of fistulæ.

Fistulæ belonging to the third group may be cured (1) by incision of the fistulous track with or without cauterisation; (2) by external urethrotomy; or (3) by excision. By this last operation is meant excision of the fistulous track and its surrounding callosities. M. Voilemier's ten successful cases are referred to; and then M. Martin writes that during the year M. Guyon performed a rather different operation for three such cases (old cartilaginous callosities not possessing any tendency to contract or cicatrise). Having freely excised the indurated portions, he performed internal urethrotomy along the inferior wall of the canal. In two, no complication occurred, and complete cures resulted. In the third patient, infiltration of urine took place, and the case ended fatally.

Under similar circumstances, M. Guyon would now prefer to incise the upper wall of the urethra, and to excise the fistula at a second operation.

VACHER ON THE TREATMENT OF SIMPLE FRACTURE OF THE SHAFT OF THE CLAVICLE.—In an article reported from the *Liverpool and Manchester Medical and Surgical Reports*, after a preliminary review of the different methods of treating this fracture, Mr. Vacher states that in 1872 he had constructed for use in dealing with this injury, two sheet-iron shoulder-pieces or caps. They were carefully shaped to fit the parts they were intended to grasp, and were connected together behind by straps and buckles. A cross-strap was added in front to prevent the caps from tilting. Each cap measured five inches across the top, and the pair weighed, inclusive of straps, padding, etc., just twenty-four ounces. He had used this apparatus on several muscular subjects, and asserts that 'if it be skillfully employed it will place and retain the acromial half of a broken collar-bone in a position very closely approaching its position before fracture, without galling the patient's skin, compressing the axillary contents, or interfering with the free action of the chest.' JOHN CROFT.

KEYES ON THE INJECTION OF BLADDER.—Dr. Keyes, of New York, in a paper published in the *American Journal of Medical Sciences*, April, 1875, states that an efficient and easy method of injecting the bladder with warm water by the patient himself alone can meet the requirements of many cases of chronic cystitis.

To wash the bladder thoroughly it must be some-

what distended. The apparatus, advocated by the author, consists of a soft rubber catheter, a two-way stop-cock, and a fountain-syringe.

About eight ounces of fluid should be first prepared, and warmed to about 110° Fahr. The bag containing this fluid is to be suspended about six feet from the floor. Air is to be ejected from the stop-cock. The catheter is to be next introduced; and, when urine begins to flow, the coupling is made with the stop-cock. Urine then flows out through the discharge part of the two-way stop-cock. As soon as the urine has escaped, the bladder is to be refilled by turning the stop-cock that only the injecting fluid from the bag can flow in. In this way the bladder can be repeatedly washed out.

The advantages over the piston syringe and injecting-bag are—(1) simplicity of structure; (2) absence of valves and piston liable to get out of order; (3) a steady stream; (4) capability of furnishing repeated successive injections without being refilled, without reapplication of the instrument, or the risk of imparting any motion to the catheter.

The author gives an illustration of the apparatus.

JOHN CROFT.

CLARK ON FRACTURE OF THE SPINE: COMPRESSION OF THE CORD: REMOVAL OF THE DEPRESSED BONE.—In the transactions of the Cincinnati Academy of Medicine, May 31 (*Clinic*, June 5), Dr. H. A. Clark reported the following case, the operation upon which he had witnessed by invitation of Drs. Stemen and Sherrick, of Van Wert, Ohio, who had it in charge.

Mr. W. P. W—, an artisan, aged twenty-nine, married and in good health, while engaged in a gravel bank, was injured in the spine by the falling in of a mass of earth. An examination of the injury showed fracture of the eleventh dorsal vertebra with depression of the arch; considerable inflammation with swelling of the back, even up to the neck, followed the injury. But little more is known of the immediate results of the accident, as the early history of the case was not accessible. About a month ago (nine months after the injury) the case came into the care of Drs. Stemen and Sherrick, of Van Wert, by whom the speaker was invited to witness the operation. Their examination elicited the following. There was depression over the site of the eleventh dorsal vertebra, the tip of the spinous process of which was detached, and from the symptoms presented Dr. Stemen surmised fracture of the laminae and compression of the spinal cord (which proved correct), and did not deem it safe to push the physical examination further than to ascertain that there was then present no sign of inflammation in the parts involved. The pressure had produced complete paralysis of all the parts below the seat of injury; no motion whatever could be effected by volition in the palsied muscles, and hardly sufficient sensation could be perceived in the lower limbs to determine which one was being sharply pinched. There was no control whatever over the sphincters of the anus and bladder. The bowels generally constipated. Ten months after the receipt of the injury, Drs. Stemen and Sherrick operated for the purpose of removing the compression on the spinal cord. A linear incision was made in the median line over the seat of injury, and the vertebræ exposed by dissecting off the adjacent soft parts. Fracture of both laminae was now discovered as had been anticipated; on the left side the lamina was completely fractured

with depression; on the right side was a partial fracture of the lamina or bending, so as to permit the left end of the fragment to be depressed. This fragment, which included the spinous process, was firmly fixed in the position described. Both laminae were cut nearly through with Hey's saw at the seat of fracture, and an effort made to remove the fragment by firmly seizing the spinous process, but it could not be removed by any force that seemed justifiable. The spinous process was then removed with a bone-forceps. This made room for the application of the trephine, by means of which the left or depressed end of the fragment was removed almost entire and the arch restored to its normal contour. On removing the cap of bone isolated by the trephine the meninges of the cord pressed backwards and bulged into the opening. The wound was dressed by a few interrupted sutures, a piece of wet lint, and a wet sponge as an elastic compress, held by a body bandage. No marked disturbance followed the operation. The pulse was never over 90. The wound healed by first intention, except at the point where the fragment of bone was removed. The wound seemed hardly to produce inflammation, as no perceptible swelling followed; hardly any increase of temperature was perceptible. The night after the operation the patient slept well, the next day he ate as usual, and stated that he felt more comfortable than before. There was a slight soreness in the back with occasionally a prickling sensation, also now and then sharp pains running through the bladder and legs, which he described as telegraph operations. Sensation was improved so that he could tell what exact toe was touched, but no motion. On the third day after the operation, there was every reason to anticipate a speedy recovery from the operation, and Drs. Stemen and Sherrick had high hopes of some relief from his previous condition, though to what extent is of course a matter of the merest conjecture. This operation has been performed in all thirty-eight times, the case now reported making the thirty-ninth; of these twenty-nine died. It was twice performed by Dr. Blackman. Dr. Stemen's makes the third in Ohio.

Dr. Clark had just received a letter from Dr. Stemen to the effect that the patient was still improving; sensation was returning to the palsied extremities, and he was regaining some control of the sphincters. The wound was healing kindly and with but little suppuration. Pulse and temperature were not above normal. The treatment by hypodermic injections of morphia was continued. This letter was dated five days after the operation.

RECENT PAPERS.

- On Angioleucotic Phlegmons of the Arm. By Dr. Chevalet. (*Archives Générales de Médecine*, July, 1875.)
- On Ignipuncture in the Treatment of Hordeiform Cysts of the Wrist. Notes on, and Cases of, Traumatic Tetanus. By M. A. Cartaz. (*Le Progrès Médical*, July 3.)
- Cases of and Reflections on Dermo-epidermic Grafts and Animal Grafts. By Dr. Jules Boeckel. (*Gazette Médicale de Strasbourg*, July 1, 1875.)
- On Vulvar Anus and Various Openings of Recto-Vulvar Fistulae, and their Treatment. By Dr. Rizzoli. (*Gazette Médicale de Strasbourg*, July 1.)
- New Method for the Antiseptic Occlusion of Wounds. By M. C. Sarazin. (*Revue Médicale de l'Est*, July 1.)

MATERIA MEDICA AND THERAPEUTICS.

LEONARD ON KOUMISS AS A REMEDIAL AGENT. In the *Chicago Medical Journal* for May, Dr. R. L. Leonard says: It has been my fortune to have an early experience in the use of koumiss (fermented mare's milk), and the effect of its use has been such that I deem it proper to call the attention of the profession to a few cases which have been materially benefited by its use.

The first patient was P., a babe, born at full term, and apparently healthy, weighing eight pounds. The mother's breasts secreted little or no milk, and from its birth the child was obliged to subsist upon cow's milk. For a few days it seemed to thrive, but the fifth day it vomited a good deal; an occasional ten-grain powder of the subnitrate of bismuth was ordered. I called on the ninth day, and found that there was little or no vomiting; but on the tenth day the vomiting had increased considerably, and there was a very loose condition of the bowels. Subnitrate of bismuth was ordered in ten-grain doses every four hours, and for a day or two the child was better; but on the fourteen day, when I called, it was reported much worse. The bismuth, which had been discontinued partially, in view of the marked improvement noticeable at my last visit, was now resumed, and the dose increased to fifteen grains; but, in spite of treatment, on the fifteenth day the babe retained but little of either milk or medicine, and its extreme emaciation induced me to obtain its weight, which I found to be seven pounds. On the eighteenth day the mother reported that it had vomited everything (milk and medicine) for forty-eight hours, and it seemed about dying from actual starvation. In this extremity it occurred to me to try koumiss. Acting upon this idea, I obtained a quart bottle of medium koumiss, and, returning, had the nursing-bottle filled with two-thirds koumiss and one-third hot water, and gave it to the starving babe; to my utter astonishment it took the koumiss with an evident relish, emptied the bottle, and equally astonishing to me was the fact that it was retained. I ordered the mother to give all the babe would take, if retained; and, on calling the next day, found that it had used the entire quart, and the bowels were moving at intervals of about six hours. On the third day after commencing the use of koumiss in this case, a slight diarrhoea manifested itself, which disappeared in twenty-four hours without treatment. The babe had all the koumiss it would take from the first, improvement continued to be rapid, and at the time of writing the child has used twenty-four gallons of koumiss, or an average of about three pints per day, is fat and healthy as a child can be at the age of fourteen weeks.

The second patient, Mrs. B., a lady of American birth, aged thirty-six years, had been debilitated by typhoid fever. Her stomach was irritable; and although the disease had a week previous passed its acme, still but little nourishment could be given on account of this excessive irritability. Koumiss was ordered in its purity, and was acceptable to the stomach; the recovery of strength was rapid, and the koumiss was discontinued in two weeks.

The third patient, Mrs. O., an American lady, aged forty-three, had been afflicted with dyspepsia for

many years, for the past ten of which her diet had been confined almost exclusively to oatmeal and her drink to very weak tea, as these were the only things that would remain unvomited. I had used koumiss in these other cases of irritable stomach and extreme emaciation, and thought it advisable to try it in her case, so I ordered it to be taken gradually for a day or two, then all she could take, to the exclusion of other food and drink. In two weeks she was much improved, so much so that she was not only able to sit up, but to take a broom and sweep the house, an exercise for which she had been totally incapacitated during the whole of the last seventeen years. After three weeks she was able to go for her own koumiss, walking a distance of one and a half miles on that mission every few days; and at present, after two months' use of the remedy, she has so far regained her digestive power that she requires but little koumiss, and can eat beefsteak and partake of the usual diet of her family table.

The fourth case, J., is a babe, aged six weeks at the time of my first visit, which was depending upon the bottle, the mother having no milk in the breasts. When I called, the babe, a little puny thing, seemed as if it were gasping for its last breath; it was extremely emaciated, and for twenty-four hours up to that time had been unable to take the bottle, and had received an occasional drachm of milk from a teaspoon; the bowels were moving every hour, and it had retained scarcely anything for a day or two. A spoonful was put into its mouth which was with difficulty swallowed; soon it was followed by another, and so on at short intervals for four hours, at the expiration of which time it took the koumiss from the bottle, and from the very moment of the administration of the first spoonful to the present time, a period of nearly two weeks, its improvement has been exceedingly rapid, and it is now quite strong and apparently healthy.

I might mention another case, in which Mrs. S., a lady aged about twenty-five years, was debilitated by a miscarriage which was accompanied by excessive hæmorrhage and succeeded by a three months' illness which left her in an extremely anæmic condition, which refused to yield to quinine, iron, strychnia and other tonics. Upon the introduction of koumiss to the treatment of the case, she improved rapidly, and in three weeks so far recovered as to be discharged cured.

It is my candid belief that in koumiss the profession has a valuable acquisition to the list of remedies; and while I have dwelt in detail upon the report of these cases, selected from my experience during the last three months with about fifty gallons of medium koumiss, I am satisfied that my success is not that kind which is attainable only in the hands of the writer, but may be duplicated by my professional brethren who have cases of extreme debility or emaciation to deal with, particularly where the stomach is in an irritable condition without active organic disease.

DAWSON ON ARTIFICIAL DIET.—In the *New York Medical Record*, June 5, is a report of a communication made by Dr. B. F. Dawson to the New York Medical Association, in which occur the following remarks on diet.

If this be judiciously selected, there is no reason why a child should not thrive as well upon artificial food as when its support is derived from the mother's breast. No food is capable of properly nourishing

an infant unless it possesses heat and fat-producing properties. Any nourishment which does not come up to the requirements of a liquid food having the proper quality will produce intestinal troubles. What nourishment are we to give? Is there any one kind of nourishment which uniformly and perfectly supplies the place of breast-milk? The article which most perfectly answers all the requirements, and can be trusted to furnish all the elements of nutrition in the most digestible form, is milk from some animal. The milk of various animals varies to a certain extent in the properties of its different constituents; but the milk of the cow is the one which should ordinarily be used, and when properly prepared may answer all purposes. In its natural state it is not a fit article of food, and some article must be added which will effect a proper dilution. Water is the article commonly added; but by far the greater number of cases suffer in consequence of its addition. The addition of water alone does not improve the digestibility of the casein, for it does not dilute it; and when milk is introduced into the stomach, diluted with water, the water is soon taken up and the casein is left as undiluted and unchanged as before the food was given. Nor does the addition of sugar make the coagula any more easy of digestion; nor does skimming the milk act beneficially, but, on the contrary, deprives it of one of its most important constituents. Inasmuch as the mother's milk contains proportionately more fat than other milk, may it not be true that the finer coagula which is formed, when the mother's milk is introduced into the stomach, is due to the presence of this fat? and would it not be better to use the milk as an article of food, from which casein has been removed, rather than use the milk which has been deprived of its cream? It had been his experience that this was the more proper course to pursue. The admixture of farinaceous articles with the milk also leads to disastrous consequences. There is one article, however, which contains such small quantities of starch that it can be used with very great success for effecting a proper dilution of cow's milk, and that is barley-water. Good cow's milk diluted from one-third to one-half with barley-water forms one of the best articles of food that can be used for infants when it is necessary to bring them up artificially. If barley cannot be obtained, oatmeal may be substituted, and answers nearly as good purpose. This article produces a real dilution of casein, and renders the coagula much finer and more nearly like the coagula which is found in milk from the mother's breast.

LIDD ON GLYCERINE AS A THERAPEUTIC AGENT.—In the *Detroit Review* for May, Dr. C. H. Lidd writes: In cases of deafness from deficiency, accumulation, or hardness of the cerumen, and attended with dryness of the meatus, glycerine is one of the best agents we possess, introduced into the canal by means of raw cotton saturated with it; but the profession at large are too well acquainted with this use of the agent to justify my entering into a detailed account of its uses in cases of this class. There is one other use of glycerine, of which I would like to speak at this point. I refer to its use in the food of children that are being raised by hand; children thus raised can be kept comparatively free from many of the ills to which they are prone, by the substitution of from four to six drachms of glycerine daily, for the amount of sugar that is usually added to the cream, milk, or water constituting their diet. In all irritable conditions of the bowels in children,

sugar should be excluded from the food and medicine prescribed, and glycerine substituted, for the simple reason that the latter is at once bland and nutritious, furnishing not only the requisite sweetness, but considerable nutrition, while absolutely resisting fermentation, and, above all, it allays the irritability through its exosmotic properties by being brought into actual contact with the bowels, thus serving, as will be readily observed, a triple purpose.

The exosmotic properties of glycerine surpass those of any agent at our command; it possesses the power of withdrawing the watery elements from any tissue to which it is continuously applied. Marion Sims long ago demonstrated the fact that a ball of lint, saturated with glycerine and applied to a freely suppurating surface, would arrest the secretion; Furst and M. Eberhurd each states that he has been successful in applying the glycerine plug in cases of fluor albus. These two writers are the only ones that I can find that even mention the use of this agent, in this way, in any of the journals that I have at command, and these only casually mention the fact of having used it with success. My attention was first called to this property of the drug some three years ago, since which time I have constantly employed it in such cases as I deemed it necessary, and in every instance I have been highly gratified with the results obtained.

J. MILNER FOTHERGILL, M.D.

REEVES ON THE UTILITY OF GUM ARABIC CAKES IN DIABETES.—In the *Melbourne Medical Record* (March 27), Dr. Reeves writes: I have been informed that diabetes is more common in New South Wales than in Victoria; but as I have not had an opportunity of seeing the returns of the number of deaths in the former colony, I am unable to state whether this is true or not. In this colony the deaths in thirteen years amounted to 38—22 males to 16 females. In analysing the number of deaths and the relative liability of the sexes, from 1861 to 1865, a period of five years, two males and seven females died; from 1866 to 1870, twelve males died and five females; and from 1871 to 1873, eight males and two females.

In the first of the cases treated by the gum arabic bread, and the best observed, the husband of the lady being fully alive to the importance of a carefully regulated diet in the disease, the patient was forty-seven years of age, a native of New South Wales, and about two years in this colony. She was not reduced in flesh, but she was weak, and very little exertion fatigued her. Her menstrual discharge was still regular, and of a good colour. She had had seven children; her family were healthy, and both her parents were living. She thought that the disease had existed two years and a half, as she had not observed any sediment in her urine since that time. The cause she considered to have been great and continued mental anxiety, but a few months before the disease was noticed she had suffered from an attack of lead-poisoning. This occurred when living in Sydney. Her urine, she states, was then sweet. Mental anxiety always increases the quantity and the sweetness of the urine. For the last four months she has been losing both flesh and strength, and pain across the loins has set in. She passes urine about three-quarters of an hour after food, and three or four times in the course of the night. Her skin is dry, the temperature both of it and the breath is lower than natural. She is passing from ten to thirteen or fourteen pints of urine in the twenty-four hours. Its

specific gravity is 1.040 or ninety-three grains of solids in the pint.

Ordered gum arabic bread, meat, with buttermilk for diet. Phosphoric acid, sedative solution of opium and biphosphate of copper one-sixth of a grain in a pill three times a day.

7th day.—The quantity of urine was reduced to six pints in the twenty-four hours, and the specific gravity from 1.040 to 1.030, or sixty-nine grains of solids in the pint.

14th day.—The quantity of urine was reduced to five pints in the twenty-four hours, and the specific gravity to 1.028. The urine was tasteless and free from sugar.

From this time there was no sugar; a week later the specific gravity of the urine had sunk to 1.025, and still later to 1.020, and not more than four to four and a half and five pints were passed in the twenty-four hours. She steadily gained flesh and strength from the first.

About six weeks later I was again requested to see her. From exposure to cold and wet, and living in a damp house, bronchitis set in of a peculiar character. The mucous membrane ulcerated, without any implication of the substance of the lungs; the expectoration was heavy and purulent, without any air-cells in it. The urine had undergone no alteration either in the quantity passed or the specific gravity. She had adhered strictly to the diet. This attack reduced her strength so much that she sank.

The second case was a man employed in a beer store. He thought the disease was excited by drinking large quantities of beer. The amount of urine passed, as in the former case, ranged from ten to fourteen pints in the twenty-four hours; the specific gravity was (after food) 1.032, and before food (no food or drink having been taken for three or four hours) 1.035. This patient had only been suffering for twelve months. His recovery was rapid. I have not seen him for more than twelve months. He had suffered severely from crop after crop of boils, and was doing so when seen. With the disappearance of the sugar the boils ceased to return.

In the third case, a female aged twenty, the treatment was equally successful. Chlorosis had existed before the urine was noticed to be passed in large quantities. It was difficult to determine when the diabetes had appeared. She has since married, and had two children.

The fourth case was not successful; the patient, a publican, aged forty, could not refrain from eating and drinking whatever his appetite tempted him to take. When he confined himself to the diet, which he did with great reluctance, he improved; the urine lessened in quantity, and the specific gravity diminished. He died from diarrhoea of a watery character, about three years from the commencement of the diabetes.

The value of any system can only be tested by a rigid investigation, which can only be carried on in a public institution, where patients can be carefully watched that they do not get everything their appetites crave for. I do not profess to say that gum arabic made into bread is a specific for diabetes; but it is, I think, worthy of a trial.

The gum arabic powder is easily made into small cakes with the aid of one-fourth of baked flour. Care should be taken, as some of the powdered gum sold contains large quantities of starch.

GERRARD ON THE ALKALOID OF JABORANDI.—After experimenting very laboriously and skilfully with both bark and leaves of jaborandi, Mr. A. W. Gerrard, of University College Hospital, has completely succeeded, not only in separating the alkaloid of that plant, wherein its great power seems to lie, but has also recently produced crystals of the nitrate and hydrochlorate salts of this alkaloid, which he terms pilocarpine. The following is a brief digest of Mr. Gerrard's process for preparing the alkaloid, published in the *Chemist and Druggist* of June 15.

Prepare a soft extract either of leaf or bark with 50 per cent. alcohol. Digest this with water, filter and wash. Evaporate the filtrate to a soft extract, cautiously add ammonia in slight excess, shake well with chloroform, separate the chloroform solution and allow it to evaporate; the residue is the alkaloid pilocarpine with probably a small amount of impurity.

Besides the alkaloid, jaborandi contains an acrid resin, tannic acid, volatile oil, and chlorophyll. The acrid resin is soluble in ether, and possesses properties which indicate it to be the substance by which the effects of its external application are produced.

Forty-five grains of pilocarpine, produced as above described, were prepared. To this distilled water was added and sulphuric acid drop by drop until the alkaloid was nearly dissolved, and the solution was neutral. After setting aside for ten days for slow evaporation, and no definite crystals resulting, Mr. Gerrard made other experiments, employing nitric and hydrochloric acids. With these he has completely succeeded, and has produced nitrate and hydrochlorate of pilocarpine in a crystalline condition, which it is likely will be the future form in which this remarkable medicine will be administered. Mr. Jameson, Dr. Sydney Ringer's assistant, reports that half a grain of the nitrate produced the usual therapeutic effects of a full dose of jaborandi on a patient within an hour; while one drop of solution of the nitrate (gr. 1 to 3j.) put into the eye of a patient caused the pupil to contract to about the size of an ordinary pin's head.

BARABAN ON THE TOXIC EFFECTS OF TARTAR EMETIC.—Dr. Leon Baraban, in his inaugural thesis, (Nancy, 1st series, no 15) gives the results of his experiments on tartar emetic. He has convinced himself that the effects of tartar emetic are not so simple as generally believed. With regard to its toxic qualities, the smallest dose of tartar emetic, capable of killing when introduced into the blood, ranges between one and two centigrammes to every kilogramme of the weight of the body (one or two parts in 100,000). Every dose above two centigrammes to the kilogramme produces death more or less rapidly, by destroying the functions of the nervous system. Prostration is further favoured in smaller doses, by the considerable lowering of the temperature and by copious serous losses. Every dose above one centigramme to the kilogramme does not kill of itself, but, if repeated a certain number of times, produces a biliary hypersecretion, which, on the one hand, brings on diarrhoea, and on the other the absorption of the principles of the bile. The blood then undergoes all the alterations which can be produced by the sodic salts of the biliary acids, and the animal finally dies of hæmorrhage. Tartar emetic possesses an alterative action on the blood-corpuscles, but that action is not enough to bring on death; that is produced by the rapid depression of

the nervous system by strong doses, and by the action of the biliary salts in small ones.

SCHMIEDEBERG ON THE PRINCIPLES CONTAINED IN DIGITALIS PURPUREA.—The *Bulletin de Thérapeutique*, contains a brief account of Schmiedeberg's researches on this subject. He distinguishes four principles which may be separated, by appropriate methods, from commercial digitalin.

1. *Digitonin*, identical with Nativelle's digitin, is an amorphous product, soluble in water, insoluble in cold absolute alcohol, benzine, ether, and chloroform. It resembles saponine in forming a lather; its empirical formula is $C_{62}H_{52}O_{34}$, not very unlike that assigned to saponin by Bochleder, viz. $C_{64}H_{54}O_{18}$. It is reddened by sulphuric acid, and furnishes at least four derivative compounds by its decomposition, viz., digitoresin, digitonein, digitogenin, paradigitogenin. The last-mentioned product is crystallisable.

2. *Digitalin*, $C_{10}H_8O_4$.—Soluble in alcohol, in a mixture of alcohol and chloroform, and in dilute acetic acid; very sparingly soluble in ether and chloroform. It forms the chief constituent of the amorphous digitalin of Homolle and Quevenne and of the digitalatin of Walz. It is not coloured by cold concentrated sulphuric acid; when heated with it, it turns yellow or greenish-yellow (like commercial digitalin). A crystal of potassic bromide, dropped into the yellow solution, turns it red, with the formation of digitaliresin and sugar. Digitalin produces the characteristic effect of digitalis on the frog's heart.

3. *Digitalein*.—Yellowish, amorphous, forming a lather with water, sparingly soluble in chloroform. Ebullition with dilute acids splits it up into digitaliresin and sugar. It is said by Görz to exhibit the specific cardiac effects of digitalis.

4. *Digitoxin*.—Absolutely insoluble in water and benzine, freely soluble in absolute alcohol and chloroform. Crystallisable in needles or tablets. Not a glucoside. Formula $C_{42}H_{33}O_{14}$. Its alcoholic solution, heated with dilute hydrochloric acid, furnishes toxiresin, but no sugar. The author believes digitoxin to be the active ingredient in the crystalline digitalin of Nativelle; the latter also containing paradigitogenin.

PATHAULT ON THE MONOBROMIDE OF CAMPHOR.—In a pamphlet containing a limited number of original observations on the physiological action and remedial uses of the drug, together with an abstract of the literature bearing on the subject; the author finds that the monobromide of camphor exerts a decided hypnotic influence on guinea-pigs and rabbits; that it lessens the frequency of the pulse and the number of respiratory movements; and that it causes a marked fall of temperature. It is eliminated in the urine. Occasionally, twitching of the hind legs was observed in rodents submitted to its influence, and true epileptiform convulsions in the cat. It has been administered with good effect in delirium tremens, hysteria, chorea, simple sleeplessness, and pain in the neck of the bladder. Perhaps the most satisfactory results put on record are those obtained at the Salpêtrière by M. Bourneville; he found that the prolonged administration of the remedy to epileptics exerted a very marked influence on the number of paroxysms of epileptic vertigo, without any corresponding dimi-

nution in the number of convulsive attacks. The monobromide of camphor is best given in capsules, each of which contains three grains of the remedy; from two to twenty of these capsules may be given for a dose.

CRAIG ON THE ACTION OF 'CHANGED ALOIN' AND THE 'RESIN OF ALOES'.—According to Mr. Craig (*Pharmaceutical Journal*, April 17, 1875) the most important constituents of aloes are—a *volatile oil*, present in very minute quantity, to which the drug owes its peculiar odour; crystalline aloin (about 25 per cent.); and resin of aloes. The last-named product is usually regarded as 'changed' or oxidised aloin, notwithstanding the circumstance that the resin yields about 20 per cent. of ash when burned; whereas aloin yields none at all. Mr. Craig's experiments on rabbits and on the human subject led him to the following conclusions.—1. Aloin is an active aperient, and is, in all probability, the active principle of aloes. 2. 'Changed aloin'—aloin oxidised by prolonged exposure to air, possesses very decided purgative properties. 3. The 'resin of aloes,' when thoroughly freed from aloin, has no aperient action, and cannot, therefore, be regarded as identical with 'changed aloin.' 4. The griping which sometimes follows the administration of aloes is not caused by the resin. The last two results coincide with those obtained many years ago by Dr. Garrod and Dr. F. Farre.

E. BUCHANAN BAXTER, M.D.

RECENT PAPERS.

- On a Means of Liberating Iodine from Iodide of Potassium in the System. By John Day, M.D. (*Australian Medical Journal*, February, 1875.)
 Mechanism of the Action of Quinine on the Circulation. By Dr. Chirone. (Paris: G. Masson.)
 Practical Studies on Subcutaneous Injections of Morphine. By Dr. Vibert. (*Journal de Thérapeutique*, June 25.)
 On Koumiss and its Uses in Consumptive Disorders. By Dr. Bartet. (*Le Bordeaux Médical*, June 20.)
 On Arsenical Medication in the Treatment of the Paludal Fevers of Bona. By Dr. Sistach. (*Archives Générales de Médecine*, July, 1875.)
 On the Treatment of Dysentery by Nitrate of Soda. By Dr. Casperi. (*Bulletin Générale de Thérapeutique*, June 30.)
 On the Internal Use of Sea-Water. By Dr. de Pietra Santa. (*Ibid.*)
 Mineral Waters and Chronic Diseases. By M. Durand Fardel. (*Bulletin Général de Thérapeutique*.)
 Ergot in the Treatment of Insanity. By Dr. E. C. Mann. (*New York Medical Record*, June 26.)
 On the Use and Choice of Wine during Great Heat. By M. M. E. Bégin. (*L'Union Médicale*, July 8.)

OBSTETRICS AND GYNÆCOLOGY.

THOMAS ON THE TREATMENT OF TUBAL PREGNANCY.—In the *New York Medical Journal*, June 1875, Dr. J. G. Thomas communicates a most valuable clinical contribution upon the subject. It is also reprinted in the form of a pamphlet. After alluding to the difficulties besetting the management of extra-uterine foetation by surgical interference, he gives the details of a case of tubal pregnancy.

The patient, a married lady, aged thirty, menstruated last on October 25, 1874; within three weeks from that date the gastric symptoms of pregnancy declared themselves. She had been sterile during the six years of her married life. About January 15,

1875, during the night, the patient, who for some days had experienced some uneasiness in the left iliac fossa, was awakened from sleep by a severe 'cramp' in this region, increasing in severity until it became agonising. Morphia hypodermically, in free and repeated doses, relieved the pain. Soreness and tenderness over the left iliac fossa continued during the next few days.

The severe attacks of pain recurred at intervals of several days, the injection of morphia being necessitated. When first seen by Dr. Thomas, on Feb. 4, fourteen weeks from the date of the last catamenia, the patient was emaciated, the eyes sunken, and her mind greatly disturbed by the fear of the recurrence of what she termed 'the cramp.'

On vaginal examination the uterus was found to be larger and less mobile than normal; a tense, elastic cyst, which filled the whole iliac fossa, dipped into the pelvis and pushed the uterus over to the right side. Ballottement was detected. Dr. Marion Sims also saw the case.

On Feb. 7, the patient, having been etherised, was placed on a table before a window admitting a strong light in the left lateral position, and Sims's speculum was introduced. The uterus was then steadied by a tenaculum in the cervix, and with the platinum knife of the galvano-caustic battery, which was brought to a white heat, the vaginal roof was slowly cut through. 'In six minutes the cyst was opened by the incandescent knife, and a straw coloured, slightly pinkish fluid was thrown out with such force as to fly into my face and over my clothing.' No blood whatever was lost thus far. The index finger was then passed into the cyst, and a fœtus detected lying horizontally. Extraction by the feet, aided by a pair of long-handled placental forceps to deliver the head, was resorted to, and the cord was then cut. Gentle traction and detachment of the placenta was then attempted, but when a little over half had been separated, a very severe hæmorrhage took place. A solution of the persulphate of iron was then injected into the sac, and the flow of blood was instantly checked. A long tent of carbolised cotton, saturated with a solution of persulphate of iron, was then inserted; 'in twenty-eight minutes from the commencement of the operation the patient was put to bed.'

The patient progressed favourably until the fourth day when symptoms of septicæmia showed themselves, but yielded to constantly repeated injections into the sac of carbolised water. On the seventh day after the operation slight hæmorrhage took place from the sac. On the fifteenth day the remaining portion of the placenta came away spontaneously. Six weeks afterwards the vaginal opening had completely closed. Ten weeks after the operation the patient, now perfectly convalescent, could scarcely be identified as the same individual.

[In this brief abstract we have but attempted to give an outline of the case. It is impossible to do full justice to the valuable remarks made by the author on the value of ballottement in forming a positive diagnosis, or to allude even to the various modes of treatment and other clinical suggestions contained in the pamphlet.—*Rep.*]

ARTHUR W. EDIS, M.D.

RECENT PAPERS.

Some Cases of Puerperal Illness in Private Practice. By Charles J. Cullingworth. (*Obstetrical Journal*, July, 1875.)

Note on the Integrity of the Placenta in Artificial Delivery. By M. Fochier. (*Lyon Médical*, June 13., 1875.)
On the Performance of Ovariectomy twice on the Same Patient. By T. Spencer Wells. (*Ibid.*)
Lectures on Puerperal Eclampsia. By Dr. M. Péter. (*Archives de Tocologie*, July, 1875.)
A Clinical Contribution to the Treatment of Tubal Pregnancy. By Dr. T. Gaillard Thomas. (*New York Medical Journal*, June, 1875.)
An Easily Effectual Method of Artificial Respiration. By Dr. Mattison. (*New York Medical Record*, June 12.)
Two Cases of Uterine Retroversion occurring during Pregnancy. By Dr. Grollemund. (*Revue Médical de l'Est*, June 15.)

REPORTS OF FOREIGN SOCIETIES.

ACADEMY OF MEDICINE IN PARIS.

May 18, 1875. *Treatment of Anthrax by Antiseptic Subcutaneous Injection.*—M. Davaine read a report on Dr. Raimbert's memoir, on the treatment of anthrax in the human subject by the subcutaneous injection of antiseptic liquids. In two cases M. Raimbert had used carbolic acid with success; in a third he used iodine, and although the patient who was pregnant, died in premature child-birth, the antecedent anthracoid affection was to all appearance cured. In another case, iodine was successfully employed in the cure of anthracoid œdema. In these four cases cauterisation was employed at the outset, and the injection of the antiseptic liquids was performed when it was found that the progress of the disease had not been arrested, and that nothing more was to be expected from cauterisation. The injections, made to a certain extent *in extremis*, produced a rapid improvement at the points to which they were applied.

A discussion was raised between MM. Davaine, Colin, and Bouley, as to whether in these cases the cauterisation performed before the injection had not produced the effects attributed to injection only.

May 25. *Scurvy.*—MM. Villemin and de Méricourt resumed a discussion on scurvy. M. Villemin differed from M. Le Roy de Méricourt, who attributes scurvy to the want of fresh vegetables exclusively. Without denying the bad influence likely to be exercised by this privation, he does not believe it to be sufficient to produce the disease in question without the intervention of a miasmatic agent; and in support of his opinion quotes a certain number of cases in which scurvy made its appearance, notwithstanding the ingestion of fresh vegetables. He subsequently brought under notice that in cases of scurvy observed at sea, the disease has almost always been arrested by altering unhealthy arrangements of the vessel. The conclusion then arrived at is that bad hygienic influences must be altered, the weakening of the system striven against, and fruits or lime-juice be given; but that it is still more important to avoid overcrowding and the mephitic atmosphere engendered by it, and to ventilate, disinfect, disperse, and, if necessary, isolate.

June 1. *Congenital Polycystic Tumour attached at the symphysis of the lower jaw and the under surface of the tongue; spontaneous premature delivery; removal of the tumour during labour; examination of the specimen.*—The communication was made by M. Verneuil. Microscopic examination showed that here was no question of a fetal inclusion, nor of one of those monstrosities described by Geoffroy St.

Hilaire, under the name of epignathus, nor even of a dermoid cyst; it was purely and simply a neoplasm, which not only adhered to the lower maxillary, but likewise came from that bone itself. In other words it was a fibro-cystic tumour, only differing from those sometimes observed in the adult by its precocious development going back to the embryonic period. It was evident that the morbid product sprang from the symphysis, which explained the circumstance of its containing masses of epithelium with vibratile cilia. As to the cysts, they certainly originated in the dental follicles.

June 8. *Lung-diseases in Copper and Iron Workers.*—M. Tardieu read a report on a memoir by Dr. Proust, on the lung-diseases or pneumoconiosis of copper and iron workers. M. Proust's work gives interesting deductions (1) from the hygienic point of view of the handicraft; (2) from the physiological and pathologico-anatomical point of view; (3) from the nosological aspect. 1. The reforms which have been introduced into the copper-worker's handicraft has greatly diminished the cases of anthracosis amongst this class of workmen, but as this is not the same with iron-casters, who still use coal-dust, it would be advisable to use some other method. 2. The possibility of the direct introduction of coal-dust into the air-passages is demonstrated. 3. The nosological conclusions deduced by M. Proust show the existence of a special kind of phthisis, which might be termed carbonaceous phthisis.

June 15. *Medical Men and Life Assurance Offices.* M. Amédée Latour presented a pamphlet by Dr. Fallard on medical men and life assurance offices. The conclusions arrived at in this pamphlet, which was really the official report of the general meeting of the association of the French medical men on the relation of medical men with life assurance offices, were as follows. 1. To always and absolutely refuse to give a certificate or any attestation whatever as to the health of their usual patients, even when solicited by them, or however satisfactory the certificate might prove to be. 2. To excuse themselves, if as medical referees to a life assurance company they are delegated by the company to examine one of their own clients, and to cause another medical man to be deputed to make the examination. 3. To use their influence with the companies to which they are attached, to obtain the revision and the simplification of the interrogations to which they have to reply. But should this interrogatory be adopted, they should take every pains to answer it in the clearest way, and in that most adapted to give information to the officials whose business it is to accept or refuse the assurance.

Relation of the State of the Lungs to the Phenomena of the Death-Struggle.—M. Piorry read a memoir on the death-struggle caused by bronchial mucus or aphrosic hyperæmia. The conclusions of this work were the following. The crepitant lung which remains voluminous at the time of necropsy is in an eminently pathological state. That state has in these cases caused the death-struggle, and death. To consider it as the type of the physiological condition is a very great error, and one that in diagnosis, therapeutics, and prognosis, would lead to disastrous consequences. By admitting this dangerous error as a truth, the crepitation which causes death would be recognised as the type of the healthy condition; that this would be to ignore the most ordinary causes of death, and consequently to lead to the belief that the medical

world is not up to the proper scientific level, and that the labours of Bichat and his successors are disregarded.

ACADEMY OF SCIENCES IN PARIS.

May 17. *Action of Mancenilla Bark.*—M. Hardy presented a memoir on the action of mancenilla bark. This bark, which the savages use to poison their arrows, comes from the *Erythrophleum guineense*. The most frequent phenomenon produced by the injection of the active substance of this bark consists in the slackening of the heart-beats and its arrest in systole. After this arrest, some respiratory movements are still found to exist in guinea-pigs. Galvanic currents act longer on the muscles of the life of relation than on those of the heart after the death of the animal. However, this action is more rapidly destroyed after poisoning by mancenilla bark than after simple ligature of the heart. Sulphate of atropia does not exercise any antagonistic action.

Glycerine in Diabetes.—M. Garnier communicated a note on the efficaciousness of glycerine taken internally in doses of twenty to fifty grammes in glycosuria. This treatment, recommended by Herr Schulze of Dorpat, seems to have yielded satisfactory results both in his and in M. Garnier's practice.

May 24, 1875. *Dissociation of Violet of Paris.*—A note presented by M. Cornil was intended to show the disassociation of the violet of methylaniline and its separation into two colours under the influence of certain normal and pathological tissues; specially by tissues in a state of amyloid degeneration. This decomposition of the colouring matter into two distinct shades, on those parts to which it is applied, is very useful in investigations in pathological anatomy. Thus, on an organ in a state of amyloid degeneration, the application of the violet of methylaniline gives a pale violet colour on the normal parts, whilst the diseased parts assume a reddish tinge. This process gives more exact results than the examination by iodine and sulphuric acid.

Application of the Graphic Method to the Mechanism of Deglutition.—A note by M. Arloing on the application of the graphic method to the study of the mechanism of deglutition was presented by M. Bouley. The results with regard to the respiratory system with isolated pharyngeal deglutitions were the following. 1. The intervention of the diaphragm has been placed beyond doubt by the direct exploration of the posterior face of this septum, by the aid of an ampulla which was inserted in front of the cæcum of a horse, passing at the back of the eighth rib on the right side. The precise moment when the depression commenced was fixed by the pressures which were felt in the pharyngeal vestibule. The traces demonstrate—(1) that the thoracic depression begins before the glottis is closed; (2) that it continues and ceases whilst the larynx is closed; (3) that the laryngeal vestibule, partly opened when the movement of deglutition commences, closes above and below when the food arrives above it, and remains perfectly closed until the mass has reached the œsophagus. From these facts, MM. Arloing and Bouley conclude that the thoracic depression may (1) at the commencement make its effects felt at the bottom of the pharynx and help in bringing the food there; (2) by stretching the œsophagus, fix the postero-inferior region of the pharynx, while the larynx bears forward and upward, and

helps in dilating the bottom of the back of the throat ; (3) more exactly keep either the parts which form the entrance to the pharynx, or the vocal cords, one against the other.

2. With successive acts of deglutition, the accidents which raise the curves of the respiration (ilium and thorax) during the deglutition of drink do not denote very small complete respiratory movements ; but a succession of simple changes of intrathoracic pressure due to the displacement of the diaphragm, and similar to those which coincide with isolated deglutitions. Consequently, the occlusion of the glottis corresponds with the discordant jerks of the ilium and thorax, and to the intratracheal depression ; and the opening of the glottis allows the circulation of the inspired or expired air. The enlargement of the bottom of the pharynx is one cause which helps the introduction of the ball of food into the œsophagus. By placing an ampulla between the base of the tongue and the lower surface of the palati velum of a horse, MM. Arloing and Bouley perfectly established the existence of the depression pointed out by M. Cartel. It was the perfectly natural consequence of the driving back of the air into the nasal cavities, but this very slight depression was soon lost in the pharyngeal depression already pointed out.

In comparing together the changes which the air in the pharyngeal vestibule undergoes, the investigators have fixed the duration of the three principal phases of deglutition. The pharynx takes less than half a second to shorten itself, drive the ball of food into the œsophagus, and relax itself.

The shock and the electric tetanus of the fleshy layer of the œsophagus resemble the shock and the tetanus of any other striated muscle. It appeared to the experimenters that, in an œsophagus of which the external nerves were dead, the shock did not diffuse itself from above 0.25 to 0.30 mètre, and that in an organ of which the nerves are excitable, the tetanic contraction propagates itself with a rapidity (20 to 21 mètres in the second) similar to that of shock and very near that of the nervous excitations. In the white part of the canal the shocks cease more rapidly ; their diffusion scarcely ever exceeds 0.15 mètre. As to the physiological contraction, MM. Arloing and Bouley have observed the fact pointed out by MM. Chauveau and Wild, that the contraction of the œsophagus produced by a pharyngeal deglutition traverses all the red portion, notwithstanding the exit of the mass. They have also observed that the peristaltic wave is not long in disappearing above the heart, if the mass do not descend as far as the stomach. The rapidity of the peristaltic wave, which should not be confounded with the rapidity of the ball of food, seems to be variable. The investigators have established that, on the average, the peristaltic wave passes over 0.20 mètre per second in the red part and 0.50 mètre in the white part. This result shows that in the horse, the peristaltic wave would take ten seconds to traverse the œsophagus.

The function of the œsophagus is thus distinguished in the two cases. *a.* In isolated deglutition the ball enters the œsophagus, and cannot get back again towards the pharynx, because of the disposition of the muscles of that region which close the œsophagus above the ball, and drive it from above downwards. Its descent is facilitated by the tension the displacement of the larynx and the movements of the diaphragm impart to the œsophagus. The constriction of the œsophagus

is at its maximum when the mass is either very small or very large. *b.* In combined deglutition, an unexpected difference has been observed. 1. Thus, the fleshy coat of the red portion is inert during deglutition of drink in hasty mouthfuls. This part of the duct merely plays the part of an elastic tube ; 2. The white portion of the œsophagus relaxes by degrees as the animal drinks, then gradually contracts when it ceases to drink. The contraction is accompanied by more or less powerful peristaltic contractions, the object of which is to empty the œsophagus from above downward. Consequently, the drink is as it were injected into the œsophagus by the organs of pharyngeal deglutition. The inertness of the red portion and the dilatation of the white portion when this exists, are indispensable to the descent of the drink, otherwise, the swiftness of the œsophageal wave being known, as well as the narrowness of the cardia, the prehension of drink would soon become impossible in a subject making from 80 to 115 deglutitions per minute, each absorbing 150 to 200 grammes of liquid.

M. Cloquet presented a note by M. Wecker on a new method of operating for cataract (extraction by peripheric morsels).

IMPERIAL-ROYAL MEDICAL SOCIETY OF VIENNA.

April 30, 1875. *Scrofula.*—Dr. Rabl, in a paper on scrofula, expressed the opinion that the scrofulous process depends on the formation of granulation-tissue, which assumes two forms. In one form (small-celled tissue) the microscope shows small lymphoid cells with roundish distinctly visible nucleus and nucleolus. The matrix of the tissue is a granular mass, very delicate, and often resembling mucous tissue. The second form (large-celled tissue) is more characteristic of scrofula. Proliferation of the cells, and division of the nuclei and cells, are not unfrequently to be observed, as well as blood-spaces and giant-cells. According to Rabl, these cells are not characteristic of tuberculosis, as Schüppel and Bühl have maintained, but of scrofula. All the preparations examined were taken immediately from the living subject, and most were examined in Müller's fluid. Dr. Rabl defines the scrofulous granulation-tissue as presenting the characters of an inflammatory new formation—an accumulation of lymph-cells and the young elements of various forms of connective tissue. Its specific peculiarity, and the character which distinguishes it from newly formed tissue, is its great weakness and its tendency to be broken up. The product of the breaking up of the granulation tissue has various degrees of consistency. It may be a thick pulpy mass, even cheesy. The flocculent form is seen in scrofulous adenitis in young subjects ; the pulpy in old indolent ulcers in cachectic individuals. According to Dr. Rabl, the formation of the granulation-tissue depends on mechanical and chemical influences acting on the lymph-spaces. To the mechanical influences belongs the stuffing (*Stauung*) of the lymph, through which it is also subjected to chemical modifications. Rabl also thinks it possible that the altered lymph-corpuscles excite the nearest connective tissue-cells to proliferation, and that then the process extends to the neighbouring cells which are not destroyed, but are changed into the tissue of the new formation. Speaking of the clinical characters of scrofula, Dr. Rabl said that the first signs in children are affections of the

skin and respiratory mucous membrane. This is most evident in children who are in unfavourable conditions—*e. g.*, damp dwellings. The irritation of the skin is vicarious with that of the mucous membrane, for which reason Rindfleisch has called eczema a catarrh of the skin. As the scrofulous condition advances, the glands swell, and granulation-tissue is formed in them. Scrofulous periostitis and caries are of special interest. The latter arises in three ways: (1) the inflammation may be communicated from the periosteum to the bone; (2) it may commence in the medulla of the long bones; or (3) in the cancellous bones. Diseases of bone form 50 per cent. of all scrofulous affections, and occur in the following order of frequency—tarsal bones, lower epiphyses of the femur, vertebræ, fingers and toes, bones of the face and skull, epiphyses of the long bones, carpus, ribs, sternum, and ilium.

May 7. *Scrofula*.—Dr. Rabl resumed his communications on scrofula by speaking of the etiological conditions, among which the acute exanthemata and hereditary dispositions were enumerated. He then referred to the relation of tuberculosis to scrofula, and expressed the opinion that the so-called tuberculous infiltration of internal organs are nothing but caseification products (*Verkäsungsprodukte*) of phthisical inflammations: that is, that the inflammatory cell-proliferation has taken place on the free surface of mucous membranes or in the interstitial connective-tissue. Both these homologous processes differ in nothing from scrofulous inflammation of external parts; phthisis is then one of the forms in which scrofulous disease frequently manifests itself.

Examination of the Rectum and Bladder.—Dr. Juriè spoke of Simon's method of examining the rectum by the introduction of the whole hand, and said that he had followed the method with success, although its use was troublesome, and required patience and strength. Professor Dittel commented on the difficulty of introducing the hand into the rectum, when the patient was very muscular. He related two cases in his practice, in one of which there had been obstruction of the bowels for fourteen days in consequence of cancerous stricture. Here the introduction of the hand was followed by laceration of the rectum. In a second case the operation was followed for several days by paralysis of the muscular coat of the rectum. Dr. Juriè said that the introduction of the hand must be performed with extreme slowness and care. The laceration he believed to have been produced by the introduction of the hand into the upper part of the rectum, which is not capable of so much distension.

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V. Ziemssen, Pathologie und Therapie. Zehnter Band. Zweite Auflage. Handbuch der Krankheiten der weiblichen Geschlechtsorgane von Professor Carl Schröder in Erlangen. Mit 147 Holzschnitten. 10 Mark. F. C. W. Vogel, Leipzig.

Die Transfusion des Blutes. Versuch einer physiologischen Begründung nach eigenen Experimental-Untersuchungen. Mit Berücksichtigung der Geschichte, der operativen Technik und der Statistik von Dr. Leonard Landois, Professor in Greifswald. Mit Holzschnitten und 4 Tafeln. 10 Mark. Vogel, Leipzig.

Handbuch der Militair-Gesundheitspflege von Dr. Wilhelm Roth und Dr. Rudolf Lex. Hirschwald, Berlin.

Ueber die pathologische Anteflexion der Gebärmutter und die Parametritis posterior. Mit Vorbemerkungen über die normale Lage der Gebärmutter von B. S. Schultze, Professor in Jena. 1875. gr. 8. Mit 20 Holzschnitten. 1 M. 40 Pf. Hirschwald, Berlin.

Die pneumatische Behandlung der Respirations- und Circulations-Krankheiten im Anschluss an die Pneumatometrie, Spirometrie und Brustmessung bearbeitet von Prof. Dr. L. Waldenburg. 1875. gr. 8. Mit 30 Holzschnitten. 11 M. Hirschwald, Berlin.

Dr. Felix von Niemeyer's Lehrbuch der speciellen Pathologie und Therapie mit besonderer Rücksicht auf Physiologie und pathologische Anatomie : neu bearbeitet von Prof. Dr. E. Seitz. Neunte veränderte und vermehrte Auflage. Erster Band. In 2 Abtheilungen. gr. 8. 1874. Preis 18 M. 1. Krankheiten der Respirations- und Circulationsorgane.

10 M. II. Krankheiten der Digestionsorgane, der Leber und Milz. Hirschwald, Berlin.

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RECENT ITALIAN BOOKS.

Alessandri Dott. Paolo Emilio. Studi di farmacologia. Livorno.

Ballotta Dott. Giuseppe. Lieve ferita della guancia riportata in stato di ebbrietà. Trombosi della vena angolare comunicata al seno cavernoso. Forlì, 1875.

Belluzzi Dott. Cesare. Intorno al parto prematuro artificiale. Bologna, 1875.

Berruti Dott. Giuseppe. La sterilità in rapporto alla moderna terapia. Prelezione detta nella riunione de 21 febbraio 1875 nella R. Università di Torino.

Bianchetti Dott. Gualtiero. Contribuzione allo studio degli essudati pleuritici. Padova, 1875.

Bizzarri Dott. Alessandro. L'olio d'oliva ; sua estrazione, chiarificazione, depurazione ec. Milano, 1875.

Bo Dott. G. B. Relazione sull'andamento dell'ospizio marino di Sestri Levante per la stagione balnearia 1874. Genova, 1875.

Bomba Dott. Domenico. Resoconto quinquennale de Comitato ligure di vaccinazione animale Genova, 1875.

Bonora Dott. Celso. Contributo alla storia dei calcoli vescicali, e relative considerazioni. Forlì, 1875.

Burci Prof. Carlo. Lezioni sulla cura chirurgica delle ernie addominali sciolte e strangolate, e più specialmente della erniotomia. Pisa, 1875.

Chiarleoni Dott. Giuseppe. Il biennio clinico 1873-74 nella R. Scuola di Ostetricia annessa all'ospizio provinciale di S. Caterina e diretta dal Prof. Domenico Chiara. Rendiconto storico-statistico. Milano, 1875.

De Pietri Dott. Pietro. Formulario terapeutico antidifterico Varallo, 1875.

Fabroni Dott. Sebastiano. Cenni intorno alla storia e alle proprietà fisico-chimiche e salutari dell'acqua minerale della sorgente di Montione nei pressi d'Arezzo. Firenze, 1875.

Federici Prof. Cesare. I morbi dell'aorta, le conseguenze sul cuore e l'origine d'alcuni segni fisici. Saggi di medicina clinica. Bologna, 1875.

Ferretti Dott. Gisberto. L'estratto alcoolico di noce vomica ad alte dosi nella cura delle malattie nervose. Forlì, 1875.

Landi Prof. Pasquale. In morte del Prof. Carlo Burci senatore del Regno. Pisa, 1875.

Levi Dott. M. R. Brevissimo cenno commemorativo di Maurizio Bufalini, letto all'Ateneo veneto nella seduta del 15 aprile 1875. Venezia.

Lussana Dott. Felice. Sull'esperimento fisiologico nelle perizie medico-legali per veneficio e su alcuni principii pseudo-alcaloidi del fegato umano. Milano, 1875.

Mariani Dott. Ugo. Di un caso grave di eclampsia epilettiforme. Firenze, 1875.

Mossa Dott. Andrea. La compressione elastica col mezzo emostatico preventivo nelle grandi operazioni chirurgiche. Torino, 1874.

Nicolosi Tirizzi Dott. Salvatore. Lo studio dell'anatomia in Sicilia in rapporto alle epoche storiche di questa scienza. Catania, 1875.

Ricchi Dott. Teobaldo. L'innesto epidermico nelle piaghe antiche. Storie e considerazioni. Torino, 1875.

Romiti Dott. Guglielmo. Della peritonite nelle mestruali, e riflessioni scientifiche sulla mestruazione. Forlì, 1875.

Simone Dott. Tommaso. Istruzione popolare sulla difterite. Napoli, 1875.

Valentini Dott. Pasquale. D'un caso d'eclampsia al settimo mese di gravidanza (Dal *Bullettino Medico* di Foggia).

Zappulla Dott. Vito. Degli errori del popolo in medicina e chirurgia. Conferenze. Milano, 1874.

NEW INVENTIONS.

BED URINAL.

This urinal has been constructed by M. Galante, the well-known French surgical-instrument-maker, on a plan furnished by Dr. Boulomier. It is based on the following principles. 1. The line according to which an individual is recumbent (the decubital line) is a broken line, of which the upper open angle is placed at the level of the nates. 2. There is between a horizontal line passing by the anterior extremity of the penis and the bed, a space large enough to place a reservoir capable of holding from 600 to 900 cubic centimetres, according to the size of the nates and the thigh of the individual. 3. As

a reservoir intended to collect the urine emitted during the decubitus should be found at the point where it flows spontaneously, it should be placed behind a layer which would prolong the direction of the penis.

The principal parts of the apparatus are (1) of a penile portion, P, a cylindrical tube sufficiently large to contain the penis; (2) India-rubber reservoir, R, provided at the back with an evacuating tap.

The parts intended to fix the apparatus are (1) a waist-band, C, fig. 2; (2) three India-rubber straps, two of them uniting by double flat buttons the penile portion, the other the back part of the reservoir to the waist-band, B B', figs. 1 and 2; (3) an India-rubber strap slipping into a slide, inserted directly into the reservoir and intended to fix the apparatus to one of the thighs, B".

The parts intended to insure the penetration of

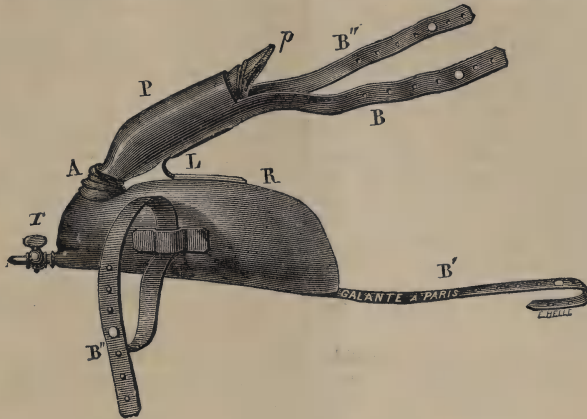


FIG. 1.

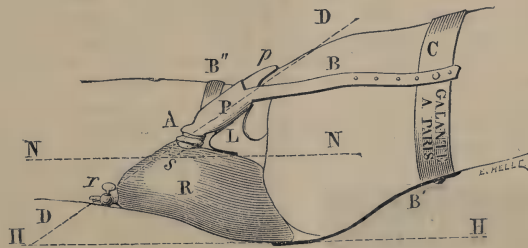


FIG. 2.

the urine into the reservoir, and to prevent its reflux are:—1. A half-disc in very flexible India-rubber placed at the entrance of the penile tube in its lower half only; 2. A thin plate of metal L, intended to assure the persistency of the angle formed by the reservoir and the penile part; 3. A valve S, placed at the end of the penile portion and formed of a simple flat tube arranged like the finger of a glove, and slit bilaterally.

The more or less oblique insertion of the penile tube and the adaptation of a rigid cylinder in a sheath of flexible India-rubber P and p, allow the apparatus to be applied to various conformations. This apparatus differs from those which have been made up to the present time by the situation given to the reservoir, which, placed in the sloping points, can fill itself completely without the liquid leaving the right direction.

HAYEM AND NACHET'S NEW APPARATUS FOR COUNTING THE BLOOD-CORPUSCLES.

Messrs. Hayem and Nachet have lately invented an apparatus for counting the corpuscles of the blood, of which the description is as follows. By its aid they make a mixture of blood and serum as homogeneous as possible; that is to say, in which it may be admitted that there is an equal distribution of the corpuscular elements. But as it is almost impossible to count the elements contained in the entire mass of the mixture, they endeavoured to find a simple and correct means of circumscribing a mathematically determined portion of this mixture without changing the distribution of the corpuscles by the manipulatory part of the operation. The apparatus which MM. Hayem and Nachet have invented for this purpose, is principally composed of a cell formed by a very thin glass plate, perforated in the centre and fixed on a perfectly flat piece of object glass. The

thin perforated glass plate is polished with fine emery on a metal plane, so as only to present a fixed thickness. By superintending this operation by the aid of the spherometer, this thickness may be obtained with certainty. Thus a cavity (Fig. 1) is obtained, of which the depth is mathematically known. By placing a drop of the sanguineous

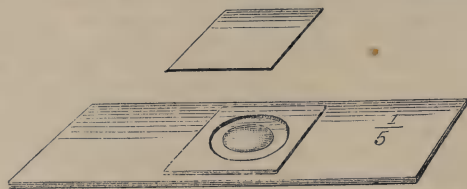


FIG. 1.

mixture in the centre of this cell, and immediately covering up the drop with a thin plate of very flat glass resting on the edges of the cell, a thin sheet of liquid, with parallel surface and of a known thickness, will be obtained. If care be taken to place properly the drop of liquid to be examined, and not to take one sufficiently large to fill the entire cavity, any elevation of the small glass plate by the liquid will be avoided, and the drop will flatten out without the regular dissemination of the corpuscles being altered. By placing a little viscid liquid, a little saliva, for instance, at the angles of the layer to be covered, the preparation will be sufficiently closed up to prevent the slipping of the glass and the evaporation of the blood.

Taking the height of the cell as the fifth of a millimètre, which is the height regarded as most suitable by MM. Hayem and Nachet, it is easy by the aid of an eye-piece marked in squares to count the blood-corpuscles in the space of a square fifth of a millimètre.

Thus we can obtain the number of corpuscles contained in a cube of a fifth of a millimètre to scale, and a simple process of multiplication will give the contents of a square millimètre of pure blood.

The glass of the ruled eye-piece carries a square of which the scale acquires, on the index marked on



FIG. 1.

the tube of the microscope, the value of a fifth of a millimètre. This large square is divided into sixteen equal squares, and in the middle of each of

them reciprocally perpendicular lines not coming to the edges are traced (Fig. 2). This arrangement makes the counting of the corpuscles rapid and easy. This should be done at five or six different points of the preparation, not choosing the edges, at the level of which a slight modification in the equal distribution of the corpuscles occurs.

To make the sanguineous mixture, MM. Hayem and Nachet only employ two perfectly graduated pipettes, one intended to hold the blood and the other the serum. As additional liquid they prefer to artificial serums natural serosities, such as the liquid of the amniotic cavity of the cow, and above all, the serosity of the dropsical effusions which occur in the human subject in certain pathological cases. First the serum and then the blood are placed in a small glass test-tube, and the mixture is made by means of a small mixer in the shape of a palette (Fig. 3). This mixer is moved quickly backwards and forwards between the fingers, and soon disseminates the

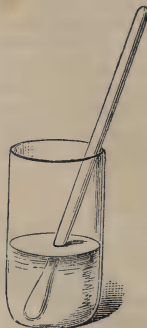


FIG. 3.

blood-corpuscles in a very uniform manner throughout the mass of the liquid.

MISCELLANY.

CREMATION.—The Government of the Duchy of Gotha has promulgated a decree legalising the cremation of the dead.

M. DEMARQUAY has left 100,000 francs to the Academy of Medicine; an annual endowment of 300 francs for a quinquennial prize of 1,500 francs to the Société de Chirurgie; his library and instruments to his pupils; and to a friend, to whom is delegated the task of collecting M. Demarquay's writings, a sum of 10,000 francs.

THE PECULIAR PEOPLE.—The peculiar people, several of whose members are now awaiting trial for manslaughter in not calling in medical aid when members of their body were sick, have resolved boldly to put to practical test the question as to whether medical aid is really a necessity, or whether prayer alone is not sufficiently efficacious in all cases of sickness. For some time past a large twenty-roomed house, situated in Tower Street, on the north-east side of London Fields, has been empty. A few days since much excitement was caused in the neighbourhood by the appearance outside the house of a board bearing the following inscription:—'House of Faith, for the reception of such sick as are considered hopeless(ly) incurable, to be healed by the prayer of faith.' 'And all things whatsoever ye shall ask in prayer, believing, ye shall receive.'—Matt. xxi., v. 22. 'Is any sick among you, let him call for the elders of the Church and let them pray over him and anoint him with oil in the name of the Lord. And the prayer of faith shall save the sick, and the Lord shall raise him up; and if he have committed sins they shall be forgiven him. Confess your faults one to another and pray for one another, that ye may be healed. The effectual fervent prayer of a righteous man availeth much.'—St. James, chap. v., vs. 14-16. 'And these signs shall follow them that believe; in my name shall they cast out devils, they shall speak with new tongues; they shall take up serpents, and if they drink any deadly thing it shall not hurt them; they shall lay hands on the sick and they shall recover.'—St. Mark, chap. xvi., vs. 17, 18. There will be a strenuous opposition on the part of the inhabitants to the opening of the hospital.

USE OF RAW MEAT.—A recent case, reported by M. Castraux, seems to confirm the opinion that the use of raw meat in the treatment of certain chronic diseases is likely to engender tenia. M. Castraux thinks, however, that the use of alcohol in combination with the raw meat might interfere with the vitality of the cysticerci. Hence, the relative rarity of cases of tenia may be attributed to the association indicated which constitutes the basis of the regimen prescribed to many phthisical patients.

PROFESSORS AND TESTIMONIALS.—M. Pajot, who is one of the most popular professors in the Paris faculty, terminated one of his recent lectures by the following remarks: 'Gentlemen, I hear that you have opened a subscription in order to present me with a gold medal. I thank you for your intention, but wish to impress on you that I have no need of medals to bear you in remembrance. Your assiduous attendance at my obstetric course is the most precious reward which could possibly have been offered to me during my professional career. At the present time, there are many families wanting bread; I beg, therefore, that you will contribute the sum of money with which you intended to present me, to the relief of the sufferers from the late inundation.'

SCIENTIFIC INVESTIGATIONS.—A return has been issued, showing the separate payments out of sums voted to the Department of the Privy Council Office for auxiliary scientific investigations during the past four years. The amount voted in each year was 2,000*l.*, and the nature of the investigations undertaken in the various years, with the reports made, were as follows: In 1871-2, investigation of infective inflammations; of tubercle, with study of the lymphatic system of serous membranes, and of the chemical changes in cases of typhus. Reports were made by Dr. Klein, Dr. Sanderson, and Dr. Thudichum respectively on these subjects. In 1872-3 the investigation of tubercle was continued, with study of the lymphatic system of the lungs; and investigations of the febrile process and of the chemical constitution of the brain were made. A second report was made by Dr. Klein on the lymphatic system. In 1873-4 there were investigations of the febrile process; of the chemical constitution of the brain; of sheep-pox; and of cancerous infection. Reports were made by Dr. Klein, Dr. Creighton, Dr. Thudichum, and Dr. Sanderson. In 1874-5, the subjects of investigation were the febrile process continued; the chemical constitution of the brain continued; infective inflammations; cancerous infection; the disinfection of contagious matters; and enteric fever. A report was made by Dr. Baxter on disinfectants, and the following reports will shortly be presented to Parliament: report by Dr. Sanderson on the febrile process; further report, by Dr. Sanderson, on infective inflammations; further report, by Dr. Thudichum, on the chemical constitution of the brain; further report, by Dr. Creighton, on anatomical studies with reference to cancer; and report, by Dr. Klein, on the contagium of enteric fever. The payments made during the four years were,—to Dr. Sanderson, 4,079*l.*, and to Dr. Thudichum, 3,322*l.*

TWO NEW GERMAN SERIALS, dedicated to zoological and anatomical research, have been published this year. The *Morphologisches Jahrbuch*, edited by Carl Gegenbaur, Professor at Heidelberg, unites anatomy and the history of development of animals in their mutual and intimate relation as animal morphology. It has for its first object the recognition of the intimate relations amongst different degrees of animal organisation, and further, to consider the anatomy of man as illustrated by the knowledge of the construction of lower organisms. The first number contains papers on the extreme ends of the animal world, viz., man and infusoria, and thus illustrates the end in view most perfectly. The *Jahrbuch* will be supplemented annually by a yearly report of the progress of the anatomy of vertebrata. This serial appears quarterly in numbers of from six to ten sheets of text, with plates, at the price of from six to nine marks. The *Zeitschrift für Anatomie und Entwicklungsgeschichte* ('Journal of Anatomy and History

of Development'), is edited by W. His and W. Braune, Professors of Anatomy at the University of Leipzig. The principal object of this new serial is to be the knowledge of the human body; but papers will also be received which touch upon this theme from a somewhat more distant point of view. At the same time attention will also be turned to the practical side of this subject as well as the theoretical, and materials will be offered to the medical man which will be of immediate use to him in his sphere of action. The double number published of this serial shows that its programme has very wide limits, and will eventually be of interest to the zoologist and anatomist, as well as to the practical physician. A number of this serial will be published every two months, containing about five sheets of text and five plates, at the price of from six to eight marks.

A DWARFISH RACE.—The general report of the operations of the Great Trigonometrical Survey of India during 1873-74, contains an account of an interview which Mr. Bond, one of the staff, had with a couple of the wild folks who live in the hill jungles of the western Ghâts, to the south-west of the Palaneî hills. A strange dwarfish people had often been heard of as frequenting the jungles near the station of Pémalei, in the north-west corner of the Tinnevely district, but until Mr. Bond caught these two specimens no trace of them had been seen by the members of the Survey. These two people, a man and a woman, believed themselves to be a hundred years old, but Mr. Bond supposes the man to be about twenty-five, and the woman eighteen years of age. 'The man,' Mr. Bond states, 'is four feet six and a half inches in height, twenty-six and a quarter inches round the chest, and eighteen and a half inches horizontally round the head over the eyebrows. He has a round head, coarse, black, woolly hair, and a dark brown skin. The forehead is low and slightly retreating, the lower part of the face projects like the muzzle of a monkey, and the mouth which is small and oval, with thick lips, protrudes about a inch beyond his nose; he has short bandy legs, a comparatively long body, and arms that extend almost to his knees; the back just above the buttock is concave, making the stern appear to be much protruded. The hands and fingers are dumpy and always contracted, so that they cannot be made to stretch out quite straight and flat; the palms and fingers are covered with thick skin (more particularly so the tips of the fingers), and the nails are small and imperfect; the feet are broad and thick skinned all over; the hairs of his moustache are of a greyish white, scanty and coarse like bristles, and he has no beard. The woman is four feet six and a half inches in height, twenty-seven inches round the chest (above the breasts), and nineteen and a half inches horizontally round the head above the brows; the colour of the skin is sallow, or of a nearly yellow tint; the hair is black, long, and straight, and the features well formed. There is no difference between her appearance and that of the common women of that part of the country. She is pleasant to look at, well developed, and modest. Their only dress is a loose cloth, and they eat flesh, but feed chiefly on roots and honey. They have no fixed dwelling places, but sleep on any convenient spot, generally between two rocks or in caves near which they happen to be benighted. They make a fire and cook what they have collected during the day, and keep the fire burning all night for warmth and to keep away wild animals. They worship certain local divinities of the forest—Rákas or Rákári, and Pé (after whom the hill is named, Pémalei).' The woman cooks for and waits on the man, eating only after he is satisfied.

THE LATE PROFESSOR VON LUSCHKA.—The following interesting notes on the late Hubert von Luschka, Professor of Anatomy in the University of Tübingen, are extracted from the *Boston Medical and Surgical Journal*, June 3, where they appear under the signature of 'Ungenannt.' At the time of his death Dr. Von Luschka 'was still a comparatively young man, and although he spent his best

years in the little town where he died, he was connected with a flourishing university (the same in which Niemeyer held the chair of practice, now occupied by Liebermeister), and did noble work during his professorship. All his published works are on a grand scale. His imperial quartos on the larynx, and on the pharynx, his *Brustorgane*, and *Bauchorgane*, are superb evidences of his power and skill as an anatomist and prosector. His work, too, on general anatomy, is one I value highly. Whatever he published was the result of original research. The extremely fine plates in all his books are the work of an artist whom Luschka kept in his employ, and who copied them with fidelity from dissections made by Luschka's own hand. So long ago as 1858, when Bamberger published his work on the heart, Luschka's descriptions of that organ were considered the best, and Bamberger used them largely. Luschka's studies upon the anatomy of the heart were made upon the frozen body. Hence, and because of their exactness, they are invaluable. I have the pleasant memory of a visit to Luschka in 1872, during a stay of some weeks in Tübingen. I shall not soon forget the cordial genial warmth of his reception. When I entered he was writing the text of his splendid work upon *Die Lage der Bauchorgane*, which is uniform in size with *Die Lage der Brustorgane*, the plates being nearly of life dimensions. He showed me the drawings made by his artist for the forthcoming work. With charming simplicity he spoke of the probable usefulness of the work, and with modest pride alluded to the beauty of the plates in books already published. I saw, however, that he felt his works had not been sufficiently appreciated, for he very gently expressed his disappointment that they were not better known in England and America. To this day I do not understand why his publications have been so little used unless their expensiveness be the reason. I recall, too, that Luschka expressed great mortification concerning the flurry over the Löstorfer corpuscles. Before I left him he invited me to visit the anatomical museum of the university with him on the following morning, at the close of his lecture, which began at six o'clock! It was then that I saw the superb collection of his dissections of the larynx, copies of which illustrate his work on that organ. I suppose there could not be more exquisite dissection. The museum was not large, but was rich in anatomical specimens and anomalies of much value, of Luschka's own preparation. His work was not complete when he died, for he was one of the patient, persevering, large-minded workers, who are few, but who are ever finding newer and better means of developing and communicating knowledge.

THE INFLUENCE OF ARCTIC COLD ON MAN.—Lieutenant Payer, the Austrian Arctic explorer, has been laying some of the results of his explorations before the Geographical Society of Vienna. Referring to the influence of extreme cold on the human organism, he related that on March 14, 1874, he and his companions made a sledge journey over the Samiklar glacier, in order to make observations of Francis-Joseph Land. On that day the cold marked forty degrees (Reaumur) below zero. Notwithstanding this intense cold, M. Payer and a Tyrolean went out before sunrise to make observations and sketch. The sunrise was magnificent; the sun seemed surrounded, as it does at a high degree of cold, by small suns, and its light appeared more dazzling from the contrast with the extreme cold. The travellers were obliged to pour rum down their throats so as not to touch the edge of the metal cups, which would have been as dangerous as if they had been red-hot; but the rum had lost all its strength and its liquidity, and was as flat and thick as oil. It was impossible to smoke either cigars, or tobacco in short pipes, for very soon nothing but a piece of ice remained in the mouth. The metal of the instruments was just like red-hot iron to the touch, as were some lockets, which some of the travellers romantically, but imprudently, continued to wear next the skin. M. Payer says that so great an amount of cold paralyses the will, and that, under its influence, men,

from the unsteadiness of their gait, their stammering talk, and the slowness of their mental operations, seem as if they were intoxicated. Another effect of cold is a tormenting thirst, which is due to the evaporation of the moisture of the body. It is unwholesome to use snow to quench the thirst, as it brings on inflammations of the throat, palate, and tongue. Besides, enough can never be taken to quench the thirst; as a temperature of 30° to 40° below zero makes it taste like molten metal. Snow-eaters in the North are considered as feeble and effeminate, in the same way as an opium-eater in the East. The groups of travellers who traversed the snow-fields were surrounded by thick vapours formed by the emanations from their bodies, which became condensed notwithstanding the furs in which the travellers were enveloped. These vapours fell to the ground with a slight noise, frozen into the form of small crystals, and rendered the atmosphere thick, impenetrable, and dark. Notwithstanding the humidity of the air, a disagreeable sensation of dryness was felt. Every sound diffused itself to a very long distance; an ordinary conversation could be heard at a hundred paces off, whilst the report of guns from the top of high mountains could scarcely be heard. M. Payer explains this phenomenon by the large quantity of moisture in the Arctic atmosphere. Meat could be chopped and mercury used in the shape of balls. Both smell and taste become greatly enfeebled in these latitudes, strength gives way under the paralyzing influence of the cold, the eyes involuntarily close and become frozen. When locomotion stops, the sole of the foot becomes insensible. It is somewhat curious that the beard does not freeze, but this is explained from the air expired falling immediately transformed into snow. The cold causes dark beards to become lighter; the secretion of the eyes and nose always increases, whilst the formation of perspiration altogether ceases. The only possible protection against the cold is to be very warmly clothed, and to endeavour as much as possible to prevent the condensation of the atmosphere, whilst the much vaunted plans of anointing and blackening the body are pronounced to have no real value.

UNIVERSITY OF VIENNA.—Dr. Richard Heschl, of Gratz, has been appointed professor of pathology in this university, in the room of the celebrated pathologist Baron Rokitsky, who has retired. The appointment has only taken place after a considerable delay, the professorship having been for some months offered to and declined by several of the most eminent pathologists in Germany. The election of *Rector Magnificus* of this university took place lately, when Professor Baron Dumreicher was chosen to fill the office for the year. He has, however, declined for reasons which have not been made public. In consequence, a second election has been necessary, and the choice has fallen on Professor Langer.

STATUE OF MORGAGNI.—On May 27 the solemn inauguration of a statue in honour of Giovanni Battista Morgagni, the illustrious pathologist, took place in Forlì, where he was born in 1682. The ceremony was attended by a large number of persons, including the Minister of Agriculture and Commerce, the Secretary of the Minister of Public Instruction, representatives of the municipalities, of nearly all the Italian universities, and of many scientific societies. After the performance of the ceremony, appropriate addresses were delivered by Dr. Mazzoni and Dr. Casati, and one in Latin by Professor Bongiovanni, president of the Lyceum. The statue is the gift of Professor Camillo Versari, and is the work of Signor Salvini. It represents Morgagni as standing erect, and wearing his professional gown over the ordinary dress of the period. His countenance wears an aspect of meditation; his left arm is bent and supinated, and the hand supports a skull; his right hand holds a pen. Each of the guests was presented with a medal commemorative of the occasion, and with two printed volumes—one containing the correspondence of Morgagni with Francesco Zanotti; the other, six lectures on Morgagni by Professor Versari.

The London Medical Record.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE LOCAL TEMPERATURE OF PARALYSED PARTS. BY PROFESSOR MAURIZIO SCHIFF, OF FLORENCE.

(Concluded from page 418.)

As I have already shown in a previous memoir, the difference changes when the animals become feverish, or are subjected to febrile excitement. In this case, during the hot stage, the temperature of the paralysed limb rises less than that of the sound one.*

I wish to take this opportunity of reminding you that some authors in commenting on this fact, which I published in 1855, attribute to me a so-called *neurotic* theory of fever, and believe that I attributed the phenomenon of the production of heat in fever to the nerves, and especially the dilating nerves of the vessels. I have not, however, said anything of the kind; and the authors in question have probably fallen into error through a mistaken interpretation of the expression 'febrile heat,' which I used in an article printed in a Vienna journal. The febrile heat of which I spoke is nothing but the subjective sensation of the patient, the sensation of heat which follows the chill.† This sensation I have derived from the vaso-motor nerves; but every one knows that it is not the same thing as febrile temperature, and even that the febrile temperature has already fallen a little when the sensation of febrile heat is felt. It has always appeared to me impossible to attempt to explain febrile temperature by a positive or negative action of the nerves, and I have always been convinced that its cause must be *chemical*. The singular modern theory of supposed heat-regulating centres has not been able to shake my conviction for a moment. From what precedes, it is seen that, if the oscillations of temperature always proceeded *pari passu* in the sound and in the paralysed limb, there would be the opportunity of occasionally finding the sound limb warmer than that in which the vaso-motor nerves are inactive, although the average temperature remains higher in the paralysed limb. But, as we have seen in the experiments in para-

plegia, it frequently occurs that the oscillations in a limb are independent of those of the other side, and the temperature of the sound limb is rising, while that of the other is falling; so that the difference at the moment becomes still greater in favour of the sound limb.

It is not impossible that this coincidence may recur several days successively at the same hour; and thus the ordinary method of taking thermometric measurements in patients may be the cause of great error.

If in man the differences between the limbs are not greater than in the dog, and everything rather leads us to believe that they are not, the difference between the maxima in favour of the sound limb can be but very small, inasmuch as in the dog it very rarely exceeds 3° Fahr. and is very often less than 1° 8'. This shows us that the difference found in your patient, which amounted to more than 16° Fahr., cannot be explained in the manner indicated. And it seems difficult to admit that in your repeated measurements, made at various times of the day, you always happened to fall on a time when the temperature of the paralysed limb was at its maximum; for this accident, of which I merely mention the possibility, was of extremely rare occurrence in my experiments. It follows, then, that the possibilities indicated do not comprehend all the cases in which a paralysed limb may have a lower temperature than the sound one, and that we must find out whether this effect is not produced by other causes or other conditions than those hitherto indicated.

And in this respect there seems to us to remain no other possibility than that which you have yourself pointed out in your letter, and of which you have spoken more explicitly in your interesting report of the diseases treated in the clinical hospital at Sienna.

You suppose that in the patient observed by you the dilating nerves of the vessels may have been paralysed, while the contracting nerves remained active; the result of which would be on the affected side an excessive constriction of the vessels, producing oligæmia and diminishing the temperature.

We are not acquainted with the course of the vaso-motor nerves in the spinal cord, but we know, as regards the foot, that both the dilator and the constrictor nerves remain without decussation as far as the medulla oblongata, so that a transverse section through the whole of one side of the cord produces paralysis both of the dilator and of the constrictor nerves of the foot of the same side. It is possible, though we do not yet know it, that the course of the dilator nerves is different from that of the constrictors. In this way it would be possible that in a case such as yours, in which an unilateral lesion of the medulla is in process of recovery, the course of the one set of nerves may be restored while the other set remains paralysed.

Such a supposition would probably explain the great difference of temperature found by you, a difference which is greater than that which has as yet been found in cases of paralysis from lesion of the peripheral nerves, in which the paralysed part was sometimes colder than the sound one. In these cases, in which your mode of explanation is most admirable, the difference in temperature amounted scarcely to 5° 5' degrees; and it seems to me that we must limit ourselves for an explanation of the difference to one of the possibilities mentioned in the first part of this letter, if in any case we desire to seek

* These observations of mine remained a long time without clinical confirmation. At last Ogle (*Lancet*, April 17, 1869, and *Medico-Chirurgical Transactions*) related a case of paralytic compression of the right cervical sympathetic; the right ear and cheek were redder than the other; but, after strong excitement, the left became warmer and covered with sweat, while the right did not perspire. Ogle adds that during a fever the difference in temperature between the two sides was lessened; probably there was a want of means for determining the small difference in favour of the sound side. In such a case, the thermo-electric apparatus would be useful.

† Connected with this febrile heat, in my opinion, are the greater congestion of the skin, and its increased secretion.

the cause of the phenomenon in a paralysis of the vaso-motor nerves.

I have not neglected to make various experiments to produce partial lesion of one half of the spinal cord. I have introduced a needle, moving it very slightly in the white and in the grey substance, but as yet I have not succeeded in producing a fall of temperature in the corresponding hind limb; whenever there was an alteration of temperature, it was always a rise.

This, however, forms no objection to your supposition. Our means of separating the parts of the nervous system from each other are much coarser than those which Nature sometimes uses. But a more serious objection would be contained in some experiments recently made by Vulpian, with which I have become acquainted within the last few days. From some experiments made on dogs, Vulpian concludes that, contrary to what we know regarding constrictor nerves, the dilator nerves do not possess a so-called *tonus*; that is to say, that these nerves are in no way active when not irritated, so that their paralysis does not produce a greater action of their antagonists, the constrictor nerves. I have not yet been able to examine this argument; and have not been able to repeat Vulpian's experiments; but if they are correct, as I have no doubt they are, I could not wish to prove from them an objection against your view.*

It might very well be admitted that certain nerves do not possess *tonus* in one species of animals, while they have it in other animals, and probably in man. Thus we know that the vagus nerve, which, as far as regards the heart, presents a great analogy to the dilator nerves, almost always possesses *tonus* in adult dogs, while it is destitute of this in most cats, rabbits, and guinea-pigs.

I would even doubt whether, if the absence of *tonus* were sufficiently proved for a certain region of the vascular system of the dog, we could absolutely generalise the fact by applying it to all the vessels of the dog. At least we know that, when the dilator nerves of the vessels of the submaxillary gland are divided, as Bernard has observed, the vessels become contracted, and the vein of the gland receives a smaller quantity of blood. As regards the rabbit, Samuel has pointed out that when the anterior auricular nerve is divided, the vessels of the ear are contracted, and the veins receive less blood. Long ago I pointed out that this nerve contained vaso-dilator fibres in the rabbit's ear, and it seems that Bernard sometimes saw the same thing. If the dilator fibres for the vessels of the ear do not always run in the interior auricular nerve, a good explanation is afforded of the exceptions which are not unfrequently seen in repeating Samuel's experiment on a large number of rabbits.

It seems to me then that clinical observations alone can decide whether the dilator nerves in man do or do not possess a true *tonus*; and until observations are sufficiently numerous to allow a decisive answer to be given, it seems to me more conformable to the laws of physiological induction to admit the existence of such *tonus* in man.

In the preceding remarks we have not yet exhausted all the conditions in which, according to our

actual knowledge, a paralysed part may present a temperature lower than that of the corresponding sound part. To complete the enumeration of these conditions, I may be allowed to add that, in my first publication on the vaso-motor nerves, I insisted on the influence of motion in the production of temperature. A limb which does not move is, *ceteris paribus*, colder than one in motion. Admitting, then, that a lesion of the centres, or perhaps of the peripheral nerves, does not involve any vaso-motor fibres, but only produces complete immobility, the limb thus deprived of motion must become colder in comparison with the sound one.

It seems that we have here an explanation of the fact that, in many cases of cerebral hemiplegia without lesion of a vaso-motor nerve, the paralysed part, if not warmed in the bed, is found to be a little colder than the sound one. And this conclusion appears to me so legitimate that, now as well as formerly, I admit that in all cerebral hemiplegiæ, in which the paralysed part has an average temperature a little above that of the sound one, there are secondary changes which extend the cerebral lesion as far as the region of the medulla oblongata.

Starting from cooling by immobility, I had come to the conclusion that, in dogs in which the temperature of a cold paralysed limb rises to the normal degree or even above it when a galvanic current is passed through the extremity, the current acts only in a secondary manner, by producing contraction of the relaxed muscles. Since more detailed observations have been made on the influence of the constant current on the vaso-motor nerves, this conclusion has seemed to me doubtful. It is possible that the current acts directly on the vaso-motor nerves, as Onimus and Legros appear to have seen in their experiments on the different influence of the ascending and descending currents on calorification. I intend to make new experiments in relation to this point.

I must speak of another fact which has forcibly struck me. In some dogs in which I had produced paraplegia by complete transverse section of the spinal cord in the lumbar region, I observed for some weeks together the oscillations of temperature of which I have spoken, when the animals, which had previously been in good health, began to lose appetite. They ate less than before, and especially selected the crumb of bread and refused the crust; they ate meat, but would have nothing to do with bones. They also drank a less quantity of water. The pulse retained its frequency, but was diminished in force. The quantity of urine seemed sometimes diminished, but of this I am not very sure. The most surprising symptom to me was that, even at the beginning of this pathological state, the oscillation of temperature ceased in the sound limb, which became colder; so that in the course of two days there might be a fall of the average temperature between the toes from 96.8° Fahr. to 59°, when the temperature of the surrounding atmosphere was 53.5° Fahr. I have kept some of these dogs till their spontaneous death, which sometimes occurred from eight to twelve days after the commencement of the pathological state. In those dogs there was observed, some time before death, more or less extensive rigidity of the muscles of the hind limbs. The thigh was rigidly drawn towards the abdomen; the knee was flexed; and the foot, which was generally less stiff, was in a state of extension. The toes remained quite mobile, and sometimes underwent transient contraction.

Others of these dogs were sacrificed two or three

* Since writing this, I have repeated Vulpian's experiment on the sublingual mucous membrane, and have observed, after keeping the animal two months, that after section of the chorda tympani the mucous membrane does not become paler.

days after the beginning of the continuous refrigeration.

In both one and the other group there was observed the beginning of a recent secondary change in the peripheral cut end of the medulla. Sometimes there was secondary change in the central end. This change, of which I shall give a description in another work, did not extend in the peripheral part more than about one-third of an inch beyond the wound. In the central part the extent was still less; but in one single case it was much greater. It is an interesting fact, that this secondary degeneration coincides with the continuous fall of temperature.

Hammond, in his work on the diseases of the nervous system, has stated that the muscular contractions which frequently occur in the course of a disease of the spinal cord, which at first produces paralysis, are a sign of the production of the often mentioned secondary alteration below the primary seat of disease; and it seems to me that, within certain limits, we may accept this view. The secondary degeneration which, at least as we have seen it in the medulla, has all the characters of a phlogosis, cannot spread without producing constant symptoms of irritation. If muscular contractions are a sign of direct or indirect irritation of motor nerves, the fall of temperature described by us appears to be a sign of the extension of irritation to the vaso-motor nerves. But, to go beyond the facts, we must declare that this fall has been only observed after section of the lumbar or lower thoracic portion of the cord; and the facts which precede justify the opinion that this fall of temperature is a more sensible index than muscular contraction of the secondary change. This appears to me proved by the fact that in our cases the fall of temperature preceded the contractions by some days. This conclusion of ours would not be contradicted if it should be found, in any clinical case in which the patient survived, that the contraction persists while the cooling ceases, to again give place to an increase and to oscillations of temperature.

The fall of temperature which arises from irritation of the peripheral end of the divided spinal cord, seems to me to explain still another fact which I have observed several times immediately after dividing the cord. It is known that the section generally produces an immediate rise of temperature in the paralysed parts. This rise is perceived in the majority of cases even before the animal is completely roused from the etherisation. But in some exceptional cases, both after semisection and after complete division of the cord, I have observed the paralysed parts to become cold and remain so for a variable time, perhaps an hour and a half; then they have become warmer, the pulsations of the arteries have become more perceptible, and after some time they have shown the raised temperature which is known as a general result of vaso-motor paralysis. I repeat that these cases of initial cooling were exceptional, and I have not been able to reproduce them at will, so far as I have endeavoured sometimes to combine an irritating influence with the process of separation of the cord. I cannot consider this cooling otherwise than as a product of irritation. This mode of viewing the subject is supported by what I have seen in some curarised dogs, in the interdigital membrane of which, before making the section, I had fixed an extremely delicate alcohol thermometer, one of those thermometers for which I am indebted to Signor Walferdin, and which

he calls *differential*. In some of these dogs, immediately after the section, I have seen the rise of temperature preceded by a rapid fall, which sometimes did not last forty seconds, and which reached about one-fourth of a degree Fahr. In these cases the fall would have escaped the ordinary means of observation. In some of these cases this fall appeared to be absent, or the cooling did not supervene which the anterior limbs sometimes show as the immediate effect of section of the lumbar portions of the cord.

We will now return to the periodical oscillations of temperature of which I spoke in the first part of this letter. A frequent variation of temperature in paralysed parts had not escaped my notice in my first researches on the effect of paralysis of the vaso-motor nerves. In my researches on the physiology of the nervous system (1855, page 144), I said:

'The difference of temperature (between the sound and the paralytic parts) remains, in the same conditions, the same after a year and a half as in the first week after the operation. I say in the same conditions, because that this difference always shows, according to the external or internal conditions, many regular oscillations; and these oscillations are the same immediately after the experiment and after a long interval of time.'

In order not to be led into error by these oscillations, I adopted the precaution of always taking the measurements at the same hour, generally between 4 and 5 A.M.

But later on, in a series of experiments on various dogs, which I made with the assistance of Dr. Angelo Mosso (which measurements were made between 9 and 10 A.M.), I was obliged to perceive that this precaution did not prevent the error which might arise from the oscillations. Here are the results of one experiment, selected at hazard. Small black bitch; section of right sciatic nerve, on March 13:

		Sound	Paralysed
		side.	side.
April 26	Interdigital membrane . .	92° 12'	94° 28'
May 5	" " " " " " " " " " " "	77° 0'	96° 8'
July 10	Beneath tendo Achillis . .	98° 06'	99° 68'
" 11	" " " " " " " " " " " "	95° 54'	93° 92'
" 11	After a short sleep . .	96° 26'	97° 52'
Aug. 28	Beneath tendo Achillis . .	94° 28'	91° 76'
Sept. 5	" " " " " " " " " " " "	88° 7'	93° 74'
" 5	Interdigital membrane . .	80° 06'	95° 36'
Oct. 3	" " " " " " " " " " " "	67° 82'	78° 08'
" 3	Beneath tendo Achillis . .	75° 2'	90° 14'
Nov. 1	" " " " " " " " " " " "	79° 7'	84° 56'
" 1	Interdigital membrane . .	68° 0'	78° 98'
	After injection of milk into the œsophagus.		
" 1	Interdigital membrane . .	71° 78'	66° 56'
" 1	Beneath tendo Achillis . .	76° 82'	74° 32'

At that time I sought the cause of these exceptions which the series of experiments presented in a transitory general agitation of the animal, because, as I had already proved in 1855 and pointed out towards the end of my memoir, and a little later in the transactions of the Natural History Society at Berne, a febrile excitement calls into action the dilator nerves of the vessels, and produces an excess of temperature in the sound parts above the temperature of the other parts, in which all the vaso-motor nerves are paralysed.

But, on continuing these experiments immediately after you did me the honour to send me your letter, I recognised that it was not a justifiable hypothesis to suppose the existence of a general excitement in all

hemiplegic animals, in which there is sometimes and temporarily a predominance of temperature in the sound part; and thus, in the course of the experiments to which I was led by your letter, I have found the regular return of oscillations independent of external circumstances and conditions. In the greater part of the animals examined by me I have found in the limbs a diurnal cycle, which recurs with an approximative regularity. But in certain paralysed parts this regularity altogether disappears.

After having by repeated experiments ascertained that these oscillations occur in hemiplegia and in paraplegia produced either by central lesion or by a peripheral lesion of the cerebro-spinal or nerve-trunks, I endeavoured to find if this rhythmical formation did not exist in the healthy parts.

On examining the temperature of the sole of the foot in dogs placed in a bag full of hay or tow, and kept as far as possible in the same conditions, I have found elevations and depressions of temperature which did not accord with the oscillations of the general temperature measured in the rectum. Up to the present time it has not been possible to subordinate the oscillations during the day to any fixed rule. Generally the temperature was low in the morning, rose towards mid-day, and showed irregular variations towards the evening. But in dogs and cats I have found, without exception, that between 8 and 10 P.M., when the animals were apt to sleep, the temperature rose to a maximum, remained high during the early sleep, and fell towards midnight.

In the ears of dogs and cats, the oscillations are much less than in the limbs; so that, without artificial or pathological excitement, a healthy ear rarely becomes much warmer than the other ear of the same animal in which paralysis of the vessels has been produced for the sake of comparison.

In the rabbit, on the other hand, the ear shows a double series of thermic oscillations. There are small oscillations which are very frequently repeated, and of which, with the aid of a very delicate thermometer or a thermo-electric apparatus, I have been able to count as many as five in the first minute, and then became convinced that there were no more. These small oscillations occur within a range (in an hour) which remains the same for several hours in succession. But when the temperature is frequently measured, both by day and by night, it is seen that this range shows great variations, and that it is generally higher between 11 P.M. and 2 A.M. than between 2 and 5 P.M. This is the more interesting, as the temperature in the rectum, if the animal have been kept alone in its box, is lower at night than in the day. In measuring the temperature in the rectum, I have first emptied it of faecal matter, to avoid error.

If these oscillations show us a new function of the muscles and nerves of the vessels, it will not be without interest to seek for them in man. I have not made any special researches on this point, but I have perceived that when I spend the whole day in the same way, either reading or writing, in a nearly equal external temperature, my hand shows at least twice in the day an increase of temperature, sensible even to the hand itself, and reaching to 7 or 9 degrees Fahr. One of these rises occurs in the day, the time of its appearance varying from 11 A.M. to 2 P.M. Towards 5 or 6 P.M. the hand has generally become colder. A second increase, much stronger and occurring in a more regular manner, takes place between 8 and 9 P.M., and lasts from four to six

hours. In the warm period, I have a sensation of heat if I touch with the palm of one hand the back of the metacarpal articulation of the other. In the cold period the sensation is the reverse, but is weaker.* I have observed also an analogous oscillation of temperature in my ears; I have not, however measured it with the thermometer.

It is evident *à priori* that the observations on the ears of the rabbit leave no doubt that the thermic oscillations coincide with or are preceded by oscillations in the diameter of the vessels. If it is so, the size of organs should be liable to changes isochronous with the oscillations, and these changes ought not to be absent in man. Researches on this subject have been made, as far as I know, by one observer only, and his researches were only made at night. According to him, the circumference of the breast diminished in the first half of the night, and again increased towards the morning. It underwent, two hours after the commencement of sleep, a diminution of $\frac{2}{35}$; after four hours of sleep, $\frac{3}{35}$; and after six hours it had again gained $\frac{2}{35}$. The size of the hand in the first two hours after sleep was reduced by $\frac{1}{18}$, after four hours by $\frac{1}{15}$, and two hours afterwards it had regained $\frac{1}{36}$. The circumference of the abdomen and of the foot had diminished after four hours' sleep by $\frac{1}{34}$; after six hours' sleep they had regained their former size. This last fact appears to indicate that the oscillations are independent of the horizontal position of the body during sleep, and the facts are probably allied to the oscillations which we have described. In the hand, in the abdomen, and in the breast, there was a diminution in the first hours of sleep, which would correspond (if the phenomenon depend on the vessels) to a contracted state of the vessels, while we have found in the hand during the first hours of the night, in the waking state, a dilatation of the vessels. It then seems that these phenomena either do not follow the same rhythm in all individuals, or that they are different in the sleeping and waking conditions.†

In speaking of these oscillations in man, we would not neglect to remember that phenomena of vascular and thermic oscillation have in some rare cases already been observed in man, in cases in which we might, probably without error, suppose the existence of a weakening or paralysis of the vaso-motor nerves.

Benjamin Brodie, in his work on local affections of the nerves, says that in some individuals in whom existed the so-called hysterical disease of the joints, the whole affected limb shows sometimes a singular alteration of temperature. Thus in the morning the whole limb may be cold and pale, as if there were no circulation of blood in it. In the afternoon the limb becomes warmer, and in the evening burning

* It would be very interesting to examine, by exact measurements, how far the superficial rise of temperature, and the loss of heat which follows it, is the cause of the lowering of the internal temperature which in man is observed during the night.

† In republishing the draft of this letter, I am very glad to be able to add that I have just received the *Philadelphia Medical Times* of February 20, 1875, which contains, at p. 330, a letter from a correspondent in Leipzig, showing that our friend Angelo Mosso, of whom I have already had occasion to speak in this letter as having assisted me in these researches, has lately occupied himself with investigating, by new methods, the oscillations in the size of portions of the human body. The very interesting facts observed by him appear to approximate more and more the contractions of the peripheral vessels in man to what I have observed in the vessels of the rabbit's ear.

to the touch, the vessels are turgid, and the skin darker and somewhat shining.

Graves observed something of the same kind in a woman. One leg became scalding hot and swollen; the skin became shining and of a dark venous colour; when this rise of heat ceased, a certain degree of swelling remained, but in the next stage the leg became pale, cold as a carcase, and comparatively painless. While this leg became cold, the other became hot and turgid; and the patient was entirely free from these attacks for three hours only out of the twenty-four. These singular facts are analogous to what we have observed in the dog, and are evidently nothing else than the exaggeration of the normal oscillations. The observation of Graves further shows, like our experiments on paraplegic dogs, that every part of the body may show its own oscillations independently of other parts.

After having found the oscillations, we had to inquire if the variation of local temperature could occur independently of a change in the general temperature; and already a long time ago we made an experiment on a rabbit, in which one thermometer was introduced into the rectum, and another into a small wound in the region of the tendo Achillis. We succeeded in rendering the animal motionless, and at the same time preserving the automatic respiration, by means of a section in the interior of the cranium, which separated, without any appreciable hæmorrhage, the upper part of the cerebellum, the cerebral lobes, the corpora striata, thalami optici, and anterior tubercula quadrigemina from the rest of the cerebro-spinal axis. While the animal was thus without spontaneous movement, and was cooling slowly, the pulse and respiration were counted from time to time, and the readings of the thermometer were taken every two minutes. Dr. Mosso was good enough to undertake to write down the details of the observation, and with his assistance it was continued from 3.15 to 9 P.M. We were fortunate enough to observe, two hours and a quarter after the commencement of the observation, an increase of heat in the leg, while the thermometer in the rectum continued falling as before. I will not copy the entire record of the observation, but only its most characteristic details.

[Dr. Schiff gives a table of the observations made, generally at intervals of two minutes, from 3.20 to 6 P.M., and then at greater intervals to 9 P.M. It is only necessary, nowever, to quote a few of the figures.]

Temperature in		
Hour.	Rectum.	Leg.
3.20	101°75	89°78
3.30	101°45	88°16
3.40	101°21	86°72
3.50	100°97	86°00
4.0	100°81	84°92
4.10	100°74	84°56
4.20	100°63	83°57
4.30	100°59	83°03
4.40	100°52	82°40
4.50	100°38	82°04
5.10	100°25	81°50
5.26	100°20	81°41
5.32	100°18	81°68
5.40	100°16	81°95
5.50	100°13	82°40
6.0	100°7	83°12
6.20	100°40	84°20
7.10	100°04	85°46
7.52	99°95	89°15
8.0	99°90	89°06
9.0	99°35	86°36

The operation was performed at 2.28 P.M.; immediately afterwards, the temperature was 15° and the pulse 25 in ten seconds. The temperature in the rectum was 102°92° Fahr.; fifteen minutes after the operation, 102°56° Fahr.; twenty-five minutes after, 102°02° Fahr. The temperature of the room was 69°8° Fahr. [See preceding table.]

At 3.20 the respirations were nine in ten seconds; at 3.34, seven or eight, and at 7.36, nine in the same time. At 4 o'clock the pulse was 153 in the minute, and at eight o'clock, 144. At 9 P.M. the respirations were fifty-four in the minute. The animal was now killed by destroying the medulla oblongata.

In this experiment it is seen that at 5.26 P.M. the temperature in the leg began to rise, and reached its maximum at 7.52. The maximum exceeded by 7½ degrees the temperature at the commencement of the increase, while in the rectum there was no trace of oscillation. This shows that in an animal not paralysed the local oscillations of temperature in the limbs are independent both of the general temperature and of the temperature of the surrounding atmosphere, and of the number of the pulse and respiration.

We still have some other less complete observations on curarised animals, with artificial respiration. But here the general cooling of the blood was too rapid, and the oscillations showed only the faintest traces. In three experiments, made on dogs, one or two thermometers were introduced into the substance of the tendo Achillis, and another very similar thermometer into the rectum. Artificial respiration was made with the hand, regulated by a metronome. Three of the experiments were without result, so far as no oscillation could be observed. The temperature fell too rapidly. In three or four other experiments a slight trace of oscillation was observed in the limbs, and this (an important point) occurred simultaneously in both hind legs.

In concluding this letter I will record two observations of some interest.

I have observed that the branchia of the *Proteus anguinus* present a phenomenon analogous to the oscillations which I have described. If the animal have been accustomed to bear daylight the branchia are sometimes for whole hours pale and, as it were, flattened; then they rapidly become red and inflated, and apparently increased in length. They remain in this turgid state for a time varying from half-an-hour to two hours, or more, and then again become pale and wrinkled. This change in the animal, left to itself, and living in water renewed daily, may be repeated three or four times a-day. If it be repeated more frequently the animal becomes restless, and makes rapid and continuous movements. When the animal is placed in water that has been boiled and then cooled, without contact with the air, the contracted state of the vessels predominates over the dilated state; and in this way it is possible to produce, after some time, a true atrophy of the branchia, which grows anew when the animal is again placed in aerated water. During the atrophic state, the proteus often comes to the surface and opens its mouth to breathe atmospheric air, and bubbles of expired air are seen to escape from the mouth.

This phenomenon, which is to be distinctly seen both in adult and young protei, differs from the oscillations observed in the limbs of mammalia, in the great rapidity which the variation is completed. While in the dog more than an hour and a half is required for the interdigital membrane to pass from

its cold state to the maximum of warmth, the change in the branchia of the proteus occurs very rapidly, and the transition from one extreme to the other takes place in a few seconds.

This appears to approximate the vascular movement of the branchia of the proteus rather to the movement seen in the rabbit's ear or in the bat's wing. In these, however, while the change is rapid, it is frequently repeated; in the proteus it is rapid, yet the stationary condition may be maintained for many hours.

From what precedes, it is plain that I wish to approximate the oscillations described in this paper to those which I have for a long time observed in the rabbit's ear. There is a great analogy between the phenomena; but I will not yet pretend to assert that they entirely correspond. In the rabbit's ear there are two series of oscillations, great and small. Perhaps the oscillations in the dog's foot and in the human hand correspond only to the more and great oscillations in the rabbit's ear, and that which corresponds to the small oscillations, and which in other parts is not distinctly shown either to the eye or to the thermometer, has yet to be found out.* The great influence of psychical excitement which I have found in the vessels of the rabbit's ear, is not without analogy in the vessels of other parts and of other animals.

I will add that my friend, Professor August Dumeril, to whom I communicated my observations on the proteus, was good enough to send me a white variety of axolotl, in the branchia of which the vessels are well seen; but I have not been able to detect in them any complete change, analogous to that in the proteus.

Some other observations have reference to the oscillations of temperature of paralysed parts during partial or superficial inflammation. You remember that long ago some authors endeavoured to prove that a strong hyperæmia cannot produce a change without contraction, and still less an inflammation, because, after division of the vaso-motor nerves, many organs are in a permanent state of strong hyperæmia with increase of heat without any disturbance of nutrition. I will not here inquire how far nutrition is or is not dependent on hyperæmia. You know that I hold that inflammation is not a product of hyperæmia, but that it is powerfully favoured by the hyperæmia which accompanies it. What I desire to here examine is, whether the experimental reason adduced by some authors in favour of the influence of hyperæmia is or is not justified by facts.

And in this respect it must be allowed that all that I have communicated in this letter shows clearly, that the argument derived from neuro-paralytic hyperæmia is not well adapted to afford proof that in the sense of the cellular pathology a high degree of hyperæmia does not produce a change of nutrition.

If some supporters of the cellular pathology allege that, after section of the vaso-motor nerves, the

organs are permanently in a state of extreme hyperæmia, I must repeat what I have already said, and which is confirmed by the facts mentioned in the beginning of this letter, that permanent neuro-paralytic hyperæmia is very far from being extreme, since the vessels contract and the hyperæmia is very greatly reduced, even at the end of the first week. But still more than by the reduction of hyperæmia is the argument in question contradicted by the new facts which I have communicated in the second half of this letter. If every neuro-paralytic hyperæmia shows, after a short time, the oscillations that have been described, the paralysed organs are under the influence of a true but not extreme hyperæmia, lasting only several hours of the day. During other hours the vessels are contracted, often very strongly; so that the influence of the hyperæmia, if it ever exists, is very powerfully limited.

As to the degree of this limitation, we have seen that it is strong in domestic herbivora (also in the horse, as I have seen in two experiments not yet published), and that it is less strong in the carnivora (dog, cat, fox). The hedgehog seems to resemble the carnivora in this respect. If all the chemical observations recorded in literature on the lesions of the cervical sympathetic and of the sciatic nerve be compared, man seems to approach the herbivora and not the carnivora in this respect. The neuro-paralytic increase of temperature was always small, sometimes so small that it could not be verified by the ordinary thermometers. In making these remarks, I do not wish to draw any conclusion against any thesis of the cellular pathology, but only against the manner in which some followers of that doctrine seek to use physiology to prove their opinions. It thus seems to me that no general statement can be made regarding the influence of a high degree of prolonged hyperæmia in man, and that this influence differs in different tissues.

It is a very interesting fact that the oscillations cease, or become imperceptible by the methods of research as yet in use, when an organ becomes the seat of inflammation. The inflammations which we have observed were in the ear, and were produced, as Samuel had already done, by covering the ear for some time with a paste of sulphuret of lime. Or the inflammations were produced in the paralysed toes or foot, and were produced by their rubbing against the ground during the movements of the animal. If the oscillations had ceased with the beginning of inflammation, to give place to a uniform dilatation, and if then the inflammation had been developed up to the maximum, this fact would favour the idea of those who regard permanent hyperæmia as one of the essential conditions for the production of inflammation, since in this case a true and strong permanent hyperæmia would have preceded the formation of the inflammation. But it is not so. Where there is seen on the foot or on the toes a slight puffiness of the skin with some small points of excoriation, the oscillations are not absent, but are weakened as the hot stage predominates.

When, after a few days, the various excoriated points have become united, when the whole of the surrounding skin is swollen, red, shining, and contains a serous secretion, the oscillations are scarcely perceptible; and when at last there is also ulceration of several points of the dorsal surface of the toes, they no longer exist. The more intense, again, the inflammation is in the dorsal surface of the foot or toes, the oscillations of temperature fail or are

* Since we discovered the rhythmic movement in the central artery of the rabbit's ear, several authors have pointed out that they have seen rhythmic movements and contractions in other vessels in mammalia or in man. Hoppe-Seyler entered such contractions in the iris, and observed them with the ophthalmoscope in the retina. Wegner says that he has found them in the iris of the rabbit. The rhythmic contractions of the vessels of the iris, according to him, are seen from three to seven times in a minute, and are independent of the pulse, heart, and respiration. Riegel and Lauder Brunton have found analogous contractions in the superficial vessels of the leg.

imperceptible in the tendo Achillis, although this is far enough from the point originally diseased. If at a later time, after the production of partial caries, the inflammations heal, leaving the foot lame and partly ulcerated, oscillations return in the tendo Achillis. Whether they return in the foot I have not examined.

We have in the preceding facts an arrest of the oscillations in the state of dilatation, of heat, and we are already acquainted with the fact of their arrest in the state of contraction, of cold, when degeneration in the peripheral part of the wound of the medulla produces a permanent irritation. I may be allowed to observe, that there may be cases of local spasm of the nerves, which may be capable of producing cessation of the oscillations in the contracted state of the vessels.

C. Handfield Jones, in his *Clinical Observations on Functional Nervous Disorders* (London, 1864, pp. 472-73), has communicated two clinical cases (157 and 158) which appear to illustrate this pathological point.

The object of the preceding observations has been to illustrate the value of local thermometry in diseases of the nervous system. The discovery of the thermic oscillations and of their modifications in paralysis shows that we must study the various forms of the thermic curve in the twenty-four hours, in order to deduce from them the medium temperature and the medium difference of local temperature in the sound and paralysed parts, and that a few daily measurements cannot lead us to a knowledge of the medium temperature and of its pathological modifications. If my observations have direct reference to disease artificially produced in animals and to healthy man, no one can better than you, my dear friend and colleague, fill up the vacant space which I have been obliged to leave, by clinical observations on the sick man.

ATKINS ON CHANGES IN THE BLOOD-VESSELS IN THE BRAINS OF THE INSANE.

In the *Dublin Journal of Medical Science* for June, Dr. Ringrose Atkins writes as follows of the minute morbid changes found in the cerebral blood-vessels of the insane.

The cerebral arterioles are found to possess three coats proper: 1. An inner fibrous; 2. A middle muscular; and 3. An outer fibrous coat. External to these, and surrounding them, is a fine hyalin sheath, formed by a prolongation of the pia mater inwards, and constituting a cylinder or canal, as it were, in which the vessels are contained. Between the outer coat and this sheath is supposed to exist a channel, the so-called 'perivascular lymph-space,' originally described by Robin, and supported by Obersteiner, Boll, and Roth, conveying the lymph and waste products to the great epicerebral lymph-space, if such can be believed to exist. This space, surrounding the vessels, plays, as we shall afterwards see, an important part in subsequent pathological processes, and has given rise to a great deal of error in its true recognition. In a diagram delineating this arrangement, the vessel is represented by an inner circle made up of three layers. The fine outer circle, separated from the inner one by a circular space, represents the hyalin sheath closely adherent to the brain-substance beyond. I need hardly say that, in

the actual tissue itself, such a differentiation of structure does not exist.

Commencing at the conditions found in the earliest stages, we come first to that of distension and dilatation of the arterioles, the result of congestion and stasis. This state of the vascular system is, in the great majority of cases, very difficult to account for; it cannot, for many reasons, be due to the increased mechanical pressure, pumping more blood than is normal into the cerebral circulation. Dr. Batty Tuke appears to think that it is rather due to some influence on the muscular coats of the vessels themselves, and advances three theories to account for this (*Edinburgh Medical Journal*, March, 1875, p. 803).

When the vessels are dilated and distended, we find the lumen increased in diameter, and often packed with dark-coloured and disintegrating blood-corpuscles, the walls of the vessels being in close apposition to the sheath and brain-tissue beyond, and their several coats appearing as if thinned and fused together. In many cases, however, the vessels are found quite empty, or perhaps with only a few blood-corpuscles still adhering to their walls. When this occurs, we must not hastily come to the conclusion that congestion did not exist during life, but we must look further for the effects it leaves behind it, which may generally, by careful examination, be detected. A drawing, taken from a vessel of the pia mater, shows the lumen filled with dark-coloured corpuscles; while another, taken from a section through the corpus striatum, shows the dilated arteriole completely occupying its canal, the lumen empty, and the walls appearing as if thinned. Should the condition here represented be of short duration, and be rapidly removed, no organic changes will follow, the vessels returning to their normal calibre in virtue of their elastic nature; but, on the opposite hand, should it persist for any length of time or increase, further morbid effects will ensue; and first amongst these is the occurrence of deposits external to the vessels, generally between the outer coat and the sheath. Of these there are three well-marked forms: (1) Crystals of hæmatoidin; (2) fatty granular masses; (3) a finely molecular material, when fresh generally of a bright yellow colour, and highly refractive, appearing like an aggregation of fat-globules, but which have not, as yet, reacted to the chemical tests for that substance. The individual particles are seen to be indistinctly corpusculated, and mixed with a finer *débris*. These particles have been likened, by Dr. Batty Tuke, to the spores of the *favus* fungus, which they strongly resemble. In a case I recently had an opportunity of examining, where the symptoms were only of a week's duration, I found this material present, in large quantity, on the walls of the vessels, and of a bright yellow colour. In this case the congestion was excessive, but in such recent cases it must be borne in mind that this deposit has been found in the brains of those mentally healthy.

Hæmatoidin-crystals are, perhaps, the most common form of deposit. They generally occur at the angle of bifurcation of a vessel; a drawing represents a collection of such crystals aggregated on the length of the wall of a vessel. These crystals are also found in the brains of those dying sane, and their presence appears to depend on the nature of the disease causing death. Accompanying or following upon these deposits, changes in the walls of the vessels ensue. The continued and excessive distension brings about an inelastic condition of the coats;

ampullations, fusiform dilatations, and, finally, true aneurismal sacculations take place. Of the normal triplicate structure scarce a vestige remains, the walls appearing as if composed of flat nuclei, until, at length, stretched beyond measure, they give way, and here and there hæmorrhages occur. The existence of these minute aneurisms, their mode of formation, and their relation to cerebral hæmorrhage, is of extreme interest. MM. Charcot and Bouchard ('On the Study of some points in the Pathology of Cerebral Hæmorrhage') have recently devoted considerable attention to this condition of the small arteries. They believe their formation to be due to a 'sclerous periarteritis,' which the authors also call 'arterial sclerosis,' and under this term describes a wavy appearance of the hyalin sheath of the vessels, with a large excess of spherical, ovoid, or irregular nuclei, existing in it. Sometimes these nuclei are present in such large numbers, that the proper coats of the vessel are almost entirely concealed. The outer fibrous coat of the affected arterioles may also be thickened and fibrous-looking, with fusiform cells lying in the direction of the long axis of the vessel, or this thickening may be absent; a large increase of the connective tissue nuclei being present in this tonic. The muscular coat is also affected, the fibres being more or less separated and thinned; this is, however, secondary to the changes taking place in the adventitia and depending on them. Little or no alteration takes place in the inner fibrous coat, the large ovoid nuclei, however, being sometimes multiplied.

In a drawing taken from a section through the optic thalamus, such an aneurismal sacculaton is seen, a distinct bulging being present on one side of the vessel; the preparation shows the outer fibrous coat thickened and wavy, while the nuclei on the walls are greatly increased both in size and number. In another drawing, taken from a section through an ascending occipital convolution of a chronic dement, a fusiform dilatation of a vessel is observed, the walls are thinned, and contained within is the remains of an old blood clot; while in a drawing copied from a plate published by Dr. Howden in the January number of the *Mental Journal*, a distinctly aneurismal condition of the vessels has been attained. When this stage has been arrived at, rupture is very liable to take place, and hæmorrhage, either punctiform or massive—as actually happened in the case from which the last mentioned drawing was taken—follows, giving rise to symptoms according to its extent. Many observers, however, differ in their explanation of the formation of these minute aneurisms from that put forward by MM. Charcot and Bouchard, referring the sacculations rather to degenerative changes of the nature of atheroma, akin to that occurring in the larger vessels, and due, probably, to the malnutrition of their coats, the result of the long-continued tension. From the specimens I have examined, I would be inclined to think that they might be the result of both conditions, fusiform dilatations and ampullations following an inelastic condition of the arterioles, while localised sacculations may be the consequence of an 'arteritis,' with proliferation of the nuclei, a part and parcel of a similar condition taking place in the neuroglia. These minute aneurisms are found both in the pia mater and in the substance of the convolutions, or motor tracts; although Dr. Batty Tuke localises them altogether in the corpora striata. They are

often found near apoplectic cysts, and are generally about the $\frac{1}{30}$ th to the $\frac{1}{40}$ th of an inch in length, and about $\frac{1}{4}$ th of that size in breadth. The rupture of these aneurisms is a fertile source of cerebral hæmorrhage. Charcot and Bouchard collected 100 cases, and in all these minute aneurisms were found to be present; and they allege that this is the one organic condition, worthy alone to be regarded as the direct cause of sanguineous extravasation.

Having arrived thus far at a frequent origin of punctiform hæmorrhage, a condition frequently found in connection with vascular changes in the brains of the insane, let us diverge for a few moments, and follow the further changes taking place in the clot effused. Soon after the minute hæmorrhage has taken place, coagulation in the centre of the clot begins to occur; a fine network of fibrin is formed, in the meshes of which the blood-corpuscles are entangled; by degrees a membranous investment is formed around the clot, constituting a complete capsule; this membrane is of variable thickness, and consists of a soft, originally homogeneous, translucent structure. This enveloping capsule is undoubtedly formed, as far as we can now see, by the precipitation of some albuminous material at the periphery of the extravasation. From the results arrived at by Schmidt, in reference to the coagulation of the blood, Rindfleisch alleges we can draw the explanation of this process, the 'encapsulation being due to the precipitation of fibrin—the fibrinogen being supplied by the nutrient fluid which bathes the clot, while the fibrino-plastic matter is derived from the blood-corpuscles within the clot.' This fibrinous capsule is always present, and Rindfleisch insists upon this, its real nature. In a drawing, taken from a section through an occipital convolution, with the pia mater adherent, is seen a well-marked example of one of these encapsulated blood-clots; it exists between the pia mater and brain-substance, and immediately beneath it is another layer of effused blood, in which the changes are not so complete. Should the condition proceed to perfect organisation, further changes will take place both in the capsule and in the clot; in the former, interstices become apparent, which increasing gradually divide the capsule into different layers; connective-tissue corpuscles appear in these interstices, and, finally, the organised membrane becomes incorporated with the connective tissue formed from the clot, the red corpuscles having been either directly converted into white ones, or the latter having immigrated from without, the mass of leucocytes thus formed becomes at once developed into fibrous connective tissue, and unites with that of the capsule, forming a small fibroid nodule. In a drawing, taken from the remains of a minute extravasation in the corpus striatum, the almost organised capsule is seen split into two, and contracting upon itself, as is evident from the rugose condition of its inner boundary, strongly resembling a section of a corpus luteum advancing in age; a few leucocytes still adhere to a portion of the membrane. As the age of these clots must be judged by the condition of the capsule, we must be careful in examining the latter, and ascertaining its reality. It often happens that the inner coat of the vessel may alone be ruptured; the blood then becomes effused between the other clots, forming a dissecting aneurism, which, on transverse section, presents all the appearance of a circular clot, with an enveloping membrane, the external coat of the vessel acting as

such; the discovery of the central canal of the vessel, however, at once points out the difference and clears up the doubt, rendering evident the recent nature of the extravasation. These organised clots or cysts, as they very often become, are found in the various stages of their development, and of various sizes, in almost every part of the brain and its membranes, though in different degrees of frequency; their occurrence in the arachnoid has been described by Drs. Wilks and Sutherland (vide *Journal of Medical Science*, October, 1865, and *West Riding Asylum Medical Reports*, vol. i.). The former observer mentions them as occurring only on one hemisphere in this situation, while the latter reports several cases where they were found on both hemispheres. These arachnoid cysts are generally found full of fluid, forming large pulpy swellings on the surface concealing the convolutions, the membrane surrounding them being tough and fibrous, and capable of sustaining considerable pressure. Such fluid cysts also occur in the choroid plexuses, and a specimen of such has been figured by Dr. Long Fox, in his work on the *Pathological Anatomy of the Nervous Centres*. In a specimen recently taken from the brain of a chronic dement of twenty-three years' standing, is seen a beautiful example of their occurrence in this situation; about the centre of the choroid plexus is seen a collection of clustered vesicles, each about as large as a small pea; when magnified, their walls are seen to be composed of a fine membrane, containing within it a clear colourless fluid. The corpus striatum is, perhaps, the most frequent seat of organised extravasations, but they are also found in the substance and on the surface of the convolutions, and often near the aneurismal dilatations, of which I have already spoken.

Having thus considered the changes produced by congestion and stasis, let us next direct our attention to the conditions in which the vessels are left after its subsidence. The elastic vessels, stretched beyond what they could normally bear, being suddenly released from the state of tension, recoil, as it were, on themselves, and consequently both their course and calibre become altered. They assume a tortuous and twisted direction, bending and coiling upon themselves, and even, in some instances, it is said, 'knots' and 'kinks' are found. This tortuous condition of the vessels is most commonly found in the pia mater, where the vessels, not running in unyielding channels, as they do in the brain substance, are free to become twisted and bent. A drawing, taken from a specimen under the microscope, well illustrates this state. The vessels are seen running in every direction, crossing and re-crossing each other, and forming regular coils. No drawing, however, could portray the beautiful appearance presented by these vessels. In the vascular channels in the brain-substance, the calibre of the vessels becomes contracted, the arterioles shrinking within their sheaths, and forming angles by the uneven contraction of their walls. Another drawing shows a vessel cut transversely, and shrunk in this manner within its sheath, leaving a clear ring between it and the brain-substance beyond. This drawing forms a strong contrast to that of the dilated arteriole, before referred to, where the vessel is in close apposition to the tissue outside, and its walls wasted and thinned. On the nature of this clear space surrounding the vessel, much confusion has taken place and error crept in, some authors considering it to be the normal perivascular lymph-space exaggerated;

others looking upon it as a dilatation of the cerebral tissue, which, from its nature, being unable to return to its normal state, on the shrinking of the vessel, leaves the clear space seen; while others, again, believe that these spaces are merely the result of contraction, consequent on the use of the hardening agents necessary in the preparation of the specimens. In all those I have myself prepared, I have never been able to observe any membrane lining this space, as is the case in the normal condition; and in many of the preparations the cerebral structure around has appeared as if condensed and granular. I look upon these appearances as pointing to a shrinking of the brain-tissue, from some cause, as the origin of these spaces; and, in addition, I may mention that I have often observed fine processes proceeding from the vessel across the space, as are well seen in the specimen from which the drawing last referred to is taken, described by Boll as existing on the outer surface of the sheath, and penetrating the cerebral substance, as if for the support of the sheath. It would, hence, appear that the sheath itself becomes closely adherent to the outer coat of the vessel, and as the latter shrinks it goes with it, and at the same time withdrawing from the cerebral substance these supporting processes, gives the vessel a thorny appearance as it here presents. Obersteiner looks upon these processes, or 'Deiters' cells,' as they are called from their first describer, as direct communications between a lymphatic space surrounding each nerve-cell and the perivascular lymph-space surrounding the vessels. This theory, however, requires confirmation. From these consideration we must look upon these spaces as abnormal formations, produced by the morbid processes going on, assisted probably by the hardening agents to which the tissues are exposed in their preparation.

We now come to the structural changes taking place in the several coats of the vessels themselves—a very important class, as on them many of the conditions of malnutrition of the nervous tissue—depend. We may have the three coats thickened, each of the tunics being quite distinct and separately affected; or, again, we may have the inner coat alone thickened, while, in many cases, the muscular layer is singly hypertrophied. It is in recognising these pathological conditions that we must exercise caution in drawing hasty inferences, as almost identical changes—especially as regard the fibrous coats—can, and often are, produced by reagents, such as glycerine, camphor-water, acetic acid, etc., used in mounting the specimens. That morbid thickenings, however, do occur, cannot be doubted, and their presence may be truly recognised by avoiding the use of fluids which have been found to produce similar artificial changes. The hypertrophy of the muscular coat is most probably due to the overwork consequent on the endeavours of the vessels to propel the blood through the tortuous and contracted vessels—such a condition being rarely present, save in long-standing cases, where obstructions of this nature are always found. In a section through an ascending frontal convolution, from a case of organic dementia, I have found a very different kind of thickening. In one the three coats are quite distinct and separate, the lumen unaltered in character, and filled with disintegrating blood-clot; while in the other the lumen is reduced to a mere furrow, so encroached upon is it by the thickened walls, the coats of which are completely fused, all trace of a division of the

layers, or the presence of muscular nuclei being obliterated, and fibroid-looking material substituted. This condition I believe to be produced by the infiltration of an albuminous plasm into the walls of the vessel, which glues the coats, as it were, together, and finally obscures and destroys their structure—encroaching, at the same time, by its distension, on the canal of the arteriole, and in time becoming converted into a fibroid connective tissue, which appearance it here presents. This specimen resembles, to a certain extent, that condition figured by Dr. Long Fox as occurring in ‘glioma,’ of the brain, and also that described and figured by Dr. Tuke as occurring in syphilitic disease of the organ; differing, however, from the latter in the absence of all trace of the muscular coat, and wanting the accompaniments of the former; and as no peculiar morbid appearances, save atrophy of the cells, were here present, in addition to this condition, and as no history or trace of syphilis could be discovered, it appears that obliterative thickening can take place independently of these conditions. As to the hyalin sheath, of which I have often spoken, this also becomes thickened by disease; but, from being frequently incorporated with the outer fibrous coat, its alterations cannot be so easily detected. I have, however, a specimen, where by chance the vessel itself has fallen out of its containing canal, leaving the sheath, slightly thickened, still adherent to the sides of the space. This condition of the sheath has been used as part proof of its normal existence.

Another condition of the minute arterioles still remains—namely, ‘fatty metamorphosis’ of the muscular nuclei, with granular masses of a similar nature (before mentioned) deposited on the walls. In another drawing the appearance presented by a vessel commencing to undergo this change is fairly seen; the specimen is taken from the pia mater, and minute oil-globules are seen dotted over its surface and around it. This condition is very important in its relation to cerebral hæmorrhage, as was first pointed out by Paget, and afterwards described by Kölliker and Wedl. Dr. Bouchard, on the other hand, thinks that the fatty granules seen are secondary to other changes, and do not give rise to a condition of the vessels favourable to hæmorrhage, averring that the granules are seen occupying the lymphatic space, and not taking the place of the muscular tunic, as supposed by Paget. Dr. Bouchard, however, acknowledges that primary fatty changes do take place in the capillaries of the brain, but says that they have been confounded with the above-mentioned secondary metamorphoses. I have examined many vessels, chiefly those in the pia mater, where the muscular nuclei were occupied by fatty granules, and no other appreciable change could be observed in their coats; and how such a condition could be secondary is difficult to understand. As regards the larger vessels, especially those at the base of the brain, atheromatous or calcareous changes are often found in those dying insane, leading to local softenings, as occurred in the case from which this preparation of the circle of Willis was taken; the left middle cerebral artery is seen to be almost occluded by calcareous degeneration of its walls, and the portions of the organ which it supplied were thoroughly softened, and in parts almost diffident.

Having thus reviewed, *seriatim*, as far as we are now acquainted, the morbid changes found in the blood-vessels, and the direct result to which they give rise, let me briefly picture, in a general way, the clinical

effects which may follow, deferring until a further period any account of the modifications occurring in the cells, neuroglia, etc., as a secondary consequence of primary vascular disease. Starting with the condition of dilatation, we can at once, on physiological grounds, portray the symptoms which will, and are found to, accompany it. Should active arterial hyperæmia be the initial cause, over nutrition of the brain-cells will take place, exaltation of function will follow, the ideas will flow free and fast, fancy will be excited, imagination roused, motor impulses become uncontrolled, and acute mania will be the result. Should this active hyperæmia change to passive congestion and stasis occur, a lowering of nutrition takes place, depression follows exaltation, the ideas come slow and shallow, indifference succeeds excitement, motion becomes impeded, and sluggish and secondary dementia gradually supervenes. Should stasis persist, organic changes in the cell-elements ensue, blocking up of the outlets for waste products follows, resulting in the infiltration of these products into the tissues; apathy succeeds indifference, consciousness and volition are gradually abolished, the calls of nature neglected, and the unfortunate sufferer sinks into a state of hopeless fatuity, life being often prolonged until the completely disorganised nervous system can no longer sustain the weight it has to bear. Although, however, I have described these changes so rapidly, yet years, aye, many years, may pass before the picture is complete; remission may follow remission, the intellect may brighten as the dilated vessels contract, opening up the blocked outlets, and allowing the waste material to be carried off, and the deteriorated but not shattered mind may be restored to reason, until a fresh attack brings the sufferer into a worse condition than before, perhaps again to remit, leaving him a step lower in the scale of mental power than he was previous to the last attack; until finally, as aggression succeeds aggression, the structures become incapable any longer of returning to the due performance of their functions, and then the mental, if not the bodily, end comes. But this dark picture has a bright side; instead of congestion and stasis following arterial hyperæmia, the latter may rapidly disappear, and mental health be restored—never again, perhaps, to be interfered with; or, should stasis follow, it may, perchance, after hope has almost well nigh gone, suddenly cease, and a similar result ensue.

ON THE FUNCTION OF THE LEVATOR ANI MUSCLE, WITH REFERENCE TO PATHOGENESIS. BY JULIUS BUDGE, PROFESSOR IN THE UNIVERSITY OF GREISSWALD.*

The levator ani is one of the few muscles of the human body, regarding which anatomists entertain not only different but diametrically opposite views. A discussion on this circumstance is not inappropriate here, as in my opinion not unimportant pathological conditions depend on disturbances of the innervation and nutrition of this muscle. I have examined it in many bodies, and have made experiments on it in animals, and have also taken comparative anatomy into counsel, in order to arrive at an insight into its action in the normal state. I will here only state what is of special interest in practice, and will publish the more minute anatomical details in another place.

* *Berliner Klinische Wochenschrift*, July 5, 1875.

The levator ani, as its name implies, is generally regarded as an elevator and dilator of the anus, and therefore a promoter of defæcation. A few anatomists only, especially Cruveilhier and Henle, regard it as a second sphincter; and, recently, Leshaft has expressed a similar opinion.

It is not possible to form a proper opinion concerning the muscle in question, unless we also examine the pelvic fascia which entirely covers it in from above, and becomes visible after removal of the peritoneum and of the thinner fasciæ formed partly by the prolongation of the fascia transversalis, partly of the fascia iliaca. The pelvic fascia consists, according to the direction of the bones of the pelvis, of a more exclusively lateral and a more transversely lying mediate portion. The first is named, after Hyrtl, the parietal, the latter, the visceral layer of the pelvic fascia. The name visceral is used, because this fascia is applied laterally to the organs lying in the pelvis, and is united with their coverings. These organs are, in the male body, the prostate, bladder, and rectum; in the female, the bladder, vagina, uterus, and rectum. It may therefore be even said that the whole surface of the pelvic fascia is interrupted by these organs. The parietal portion lies over the obturator foramen, and thence derives the name of obturator fascia. The pelvic fascia entirely covers the levator ani, and this is in various parts so intimately connected with it through its muscular fibre, that they seem to be blended together. The fascia must be regarded as partly affording points of origin, partly of insertion. A point of origin without doubt is the ribbon-like portion which is attached to the posterior surface of the pubic bone, near the lower end of the symphysis, and proceeds to the spine of the ischium—the so-called *arcus tendineus*. In other parts, the fibres may be regarded as being inserted into the fascia; and on account of their position these parts deserve our consideration. For, since muscular fibres spread out from the firm, almost immovable, points of origin as far as the pelvic fascia, the latter is put on the stretch, and so far the levator ani must be regarded as a tensor of the fascia. The immovable points of origin are the posterior surface of the pubic symphysis and a portion of the horizontal ramus of the pubic bone, the *arcus tendineus*, and the spine of the ischium. The tension of the fascia is, however, increased by another cause; viz., that underneath the pelvic fascia lie two other distinct fasciæ, in some parts very firm—the proper perineal fasciæ—which enclose the transversus perinei muscle between them. The entire plane on which lie the subcutaneous fasciæ, the perineal fasciæ, and the pelvic fascia, exerts a powerful resistance to pressure from above downwards on the contents of the pelvis. This pressure from below supplements the abdominal pressure, in consequence of which the contents of the pelvic organs are forced towards the parts where there is least pressure—the opening of the intestinal tube and of the uro-genital apparatus. For our purpose, we have only to consider the pressure on the rectum. It is well known that the rectum is divided into a suprapertitoneal and an infrapertitoneal portion. The former is movable by means of the mesorectum; the latter is fixed to the sacrum by connective tissue, and especially by the neighbouring parts, namely, the pelvic fasciæ and the levator ani. The abdominal pressure acts chiefly on the suprapertitoneal portion of the rectum, as well as on the sigmoid flexure. Three tendon-like expan-

sions are simultaneously put on the stretch, and act first on the small intestine, and thereby indirectly on the sigmoid flexure and the upper part of the rectum, which must be regarded as the reservoir of fæcal matter. The lower part of the rectum first receives the excrements just before defecation takes place; otherwise it is more or less empty. The tendinous expansions which come into action in abdominal pressure are, the central tendon of the diaphragm, the aponeuroses of the abdominal muscles, and the pelvic fascia. During ordinary respiration, the central tendon moves but little from its place, and remains arched towards the pericardium; in deeper inspiration, on the contrary, as is the case during abdominal pressure, it sinks, and presses the liver down on the small intestines. The aponeurosis of the abdominal muscles lies in such a direction that it acts backwards and downwards. This is brought about by the peculiar constitution of the posterior layer of the sheath of the rectus abdominis. This ceases below the umbilicus, and all the tendinous fibres which proceed from the transversalis, and part of those from the internal oblique, ascend towards the umbilicus, forming the *linea semicircularis* of Douglas. It hence follows that the lower section of the abdominal wall contracts less than the upper, if the oblique abdominal muscles are called into action. One may easily become convinced of this by laying both hands (not the thumbs) on the abdominal wall, in such a way that one hand lies with the edge of the little finger resting on the horizontal ramus of the pubic bone, while the other hand reaches as high as the umbilicus, and then making a deep expiration; the lower hand is drawn inwards very little or not at all, while the upper is very distinctly so. The cause of this is, first, that the lower fibres of the transversalis muscle are shorter than the upper, so that they cannot move so far; and, secondly, that the viscera lying here cannot slip aside. For the diaphragm presses down from above, the pelvis is filled with viscera, and especially the pressure exerted by the aponeuroses of the abdominal muscles is less, since even the posterior layer of the sheath of the rectus is wanting. Hence this portion of the abdomen is not much retracted in pressure on the abdomen; indeed, it is rather arched forward. If the sigmoid flexure, containing the greater part of the fæces, or the bladder be much distended, these organs occupy the space lying under the *linea semicircularis* of Douglas.

We have so far spoken of the levator ani as a tensor of the fascia. This, however, is by no means its sole, nor even its principal function. The muscle comes rather, in its course, into very near connection with the rectum, and also indirectly with the urethra. If the levator ani be looked at superficially from above, after the removal of the pelvic fascia, or from below after removal of the integuments and fat, it forms a muscular plane which, apart from the above-mentioned *arcus tendineus*, is attached to three bony points—the horizontal ramus of the os pubis, the spine of the ischium, and the anterior end of the coccyx; and, having a generally transverse course, extends to the infrapertitoneal portion of the rectum. Looked at in this way, the assumption that the levator ani dilates and elevates the rectum is understood. It was through the anatomical researches of Cruveilhier and Henle that other views were first entertained. They explained this muscle to be a second sphincter, arriving at the conclusion, from the course of its fibres, that it did not produce

dilatation, but contraction. I will first briefly describe the course of the individual bundles. In order to separate them, a ten-per-cent. solution of salt is employed with advantage; and it is better to use preparations which have lain some time in spirit than fresh ones.

If a plane be imagined as passing through the lower third of the posterior surface of the pubic symphysis, through the spines of the ischia, and through the front of the coccyx, the greatest part of this plane is occupied by the levator ani. At two points only is it not occupied by this muscle, but by other organs. These are in front, behind the os pubis, the prostate, the commencement of the membranous urethra, the vagina; behind, the infraperitoneal division of the rectum. Around the first-named the levator ani is arranged in an arched manner; its fibres are connected with the rectum. This connection takes place in the following manner. The rectum is surrounded by a thin but very firm fascia, which is insinuated between the muscular bundles just as is the case with the gluteal muscles. The fasciculi of the levator ani follow the fascia, so that in some degree they may be regarded as an aponeurosis of the muscle. From that division of the levator ani, which does not surround the rectum and which contains the greatest mass of fibres, must be distinguished—1. The portion lying between the prostate (vagina) and rectum, and in front of the latter; 2. That lying behind the rectum in front of the apex of the coccyx; 3. The fibres of communication with the deep transversus perinæi.

The muscular mass lying in front of the rectum, which for brevity we will call the prerectal portion of the muscle, is indeed for the present of less account than that lying behind the rectum; but it forms a point from which fibres pass backwards, while others go to the urethral muscle or even to the musculus bulbo-cavernosus, and others, again, unite with those of the opposite side. The prerectal portion arises in the middle, near the symphysis pubis, and forms a partial arch, while the fasciculi of one side unite with those of the other side either by muscular structure or by a septum. Another set of the fasciculi courses through this portion, and these partly remain on the same side, and partly decussate with the fasciculi of the other side; this combination passes behind the rectum, and forms a part of the postrectal fasciculi. Finally, a smaller number of fibres pass forwards towards the prostate (vagina), and are applied to the fibres of a muscle lying under the levator, but of less extent, the deep transversus perinæi, especially to that portion of it which is usually called the urethral muscle. As the muscle just mentioned compresses the membranous part of the urethra, it may be assumed that the contraction of the urethra is not unaffected by the contraction of the levator ani.

The external fibres of the levator ani, which spring laterally from the horizontal ramus of the pubic bone, as well as those which arise from the spine of the ischium, enter into the arch formed by the postrectal portion. A lower and an upper portion of these fibres may be distinguished. The former lies near the external sphincter, into which bundles of fibres proceed from it. The upper portion springs principally from the prerectal part; the posterior belongs mostly to the external fasciculi coming from the pubic bone and ischium.

From this description, it appears that the rectum is surrounded as with a sleeve by the different fasci-

culi of the levator ani; and that, when its nerves are irritated, this sleeve must contract and constrict the rectum above the anus. It may be said that the whole infraperitoneal portion of the rectum is enclosed by the levator ani, if it be remembered that, as above mentioned, it penetrates into the rectal fascia. The anus only remains free, if we leave out of account the scanty fibres which are connected with the external sphincter.

Physiological experiment also proves that the rectum may be constricted by the levator ani. In dogs this muscle is very strongly developed, and its course is, on the whole, similar to that in man. I have laid bare the muscle in a beheaded animal, while a preparation of the same part lay before me. I then placed each half of the muscle in connection with an induction apparatus. It was, of course, necessary to avoid passing the current through the external sphincter, and, on this account, separate stimulations were employed. The rectum was cut across, and a glass tube was fixed in it, through which water was constantly poured. So long as the circuit remained broken, the water flowed continuously from the anus; but when it was closed, the levator ani was seen to contract, and there was a decrease sometimes or complete arrest of the outflow.

There is also present a double sphincter cloacæ in birds, reptiles, and amphibia. Cuvier reckoned the levator muscle in these animals among the sphincters.

There can, then, be no doubt that the levator ani, when called into activity, is capable of narrowing and closing the rectum. Nevertheless, I consider it perfectly adapted to promote defæcation, without dilatation of the rectum.

The rectum is provided at its lower end, above the anus, with a considerable dilatation, which the French call *ampoule rectale* or *pouche du rectum*, also *cul-de-sac ovoïde*. This part is entirely surrounded by the levator ani, and must be narrowed when this muscle contracts.

The normal influences on which the contraction of the muscle depends, are the healthy condition of its fibres, its proper nutrition, and the stimulation of its nerves. First to speak of the latter, it is partly reflex, partly voluntary. There is, indeed, no doubt that stimulation of the centripetal nerves of the mucous membrane of the rectum reflexly calls into action the unstriated fibres of the rectum, and also the striated fibres of the levator ani which is so closely connected with it. The voluntary stimulus may act either in the levator ani or on the sphincter. In the first case, the already existing reflex movements are increased, and the fæces are expelled; in the latter, on the contrary, the anus is closed and evacuation does not take place. The fæcal masses, however, are not driven upwards by the contraction of the levator ani, because the resistance of the abdominal pressure downwards is too great. The reason why the influence of the will is superadded to the reflex irritation is easily to be perceived. The movement of the levator ani is felt, and produces the desire of defæcation. This sensation being present, the mind has the choice of voluntarily directing attention to one or the other muscle, and producing the corresponding action. If the voluntary contraction of the sphincter ani be continued for some time, the reflex action on the levator ani becomes relaxed and at last ceases; that is, in other words, if the impulse to defæcation be not allowed

to have effect, it ceases, until renewed by the presence of fresh masses in the infraperitoneal portion of the rectum.

From this explanation it follows, that the levator ani can only produce defecation when the abdominal pressure co-operates with it and the sphincter ani is not contracted.

It is perfectly clear that obstruction may occur when the contractile power of the levator ani is diminished by any cause. This may, for instance, take place when the muscular force is reduced by great fatigue or concussion. There are many persons who have obstinate constipation if they take long walks or travel long distances in carriages; and it may be also a result of want of ordinary food. Cases of the latter kind are not to be treated by laxatives, but by iron and similar remedies; while nervous affections demand the use of the constant current and other measures which act in a similar manner.

It finally remains for me to consider the question whether the levator ani may not in some circumstances act vicariously for the sphincter ani. The observation has been made that, after division of the external sphincter, and after extirpation of the rectum, the power of retaining the fæces is, nevertheless, still present. Bardeleben, in his *Lehrbuch der Chirurgie*, fifth edition, vol. iii., expresses himself in the following manner. 'If the entire sphincter have been removed in extirpation of the rectum, the ordinary result is incontinence of fæces. The fæces do not, indeed, escape continually as from a preternatural anus, but the patients are unable to resist the slightest pressure. That the retention of the fæces is possible up to a certain degree, and that a constant escape does not take place, depends on the action of the third sphincter, described by Nélaton.'

This sphincter is named by Nélaton superior sphincter (see Velpeau, *Traité complet d'Anat. Chir.*), and by Hyrtl sphincter ani tertius (*Lehrbuch der Anatomie*). According to Nélaton, it lies a little more than four inches above the anus, just at the point of junction between the suprapræperitoneal and infraperitoneal portions of the rectum. According to Velpeau, it extends in front about six or seven inches, behind about one inch. Regarding the functions of this sphincter, Velpeau expresses himself as follows. 1. By it, the fecal masses are probably retained above the lower dilatation of the rectum, into which they descend just before defecation. 2. During defæcation, its function seems to be to prevent the return of the fæces into the colon. 3. If the lower sphincter be divided during operation for fissure or fistula ani, or during extirpation of the rectum, it appears to afford a resistance to the involuntary escape of excrement.

This assumption, which seems to receive the assent of most surgeons, nevertheless proceeds from data which cannot be regarded as perfectly established. For, if the functions above mentioned were dependent on the superior sphincter, it would be necessary to prove that it is constantly present at the place named, just as there is here a valvular projection of a fold of mucous membrane. There must also be found a reason for supposing that, when the fæces reach the point in question, the muscle contracts so powerfully as to cause an obstruction. It is, indeed, correct to say that, as O'Beirne remarked, the principal reservoir of the fæces is the sigmoid flexure. This statement, however, may be improved by adding that not only the sigmoid flexure but the

suprapræperitoneal portion of the rectum has this function. It is also correct to say, that the infraperitoneal portion of the rectum generally contains no fæces, but that these are only carried into it before defæcation. It may be concluded from this observation, that conditions must be present which render the carrying downwards of the fæces more difficult than it was before; but it does not follow that the cause of this is to be sought in the sphincter referred to. It must rather be considered that the suprapræperitoneal portion of the rectum is much more movable than the infraperitoneal. By means of the mesorectum, the former can move from one side to the other; and a kind of bending occurs at the limit between the two portions which, as is the case with the fundus of the bladder, restrains the advance of the fæces until there is increased pressure from above.

It is, however, a question of special importance whether the upper sphincter is constant or not; that is, whether at the point described the circular fibres of the rectum lie more thickly near and on each other. That this is often the case cannot be questioned; and then a sphincter may be demonstrated as Velpeau has described it. But we also search often for it in vain. I have not made investigations on the bodies of adults, but only on those of embryos and new-born children; and I have not been able to convince myself that Nélaton's sphincter is constantly present. The assumption which Sappey gives of it in his *Traité d'Anatomie descriptive*, vol. iii., agrees perfectly with my observations. He says: 'It is an error to suppose that a superior sphincter always exists; for it is not very rarely seen that the circular fibres of the first portion of the rectum are not more developed than those of the sigmoid flexure and of the rectal pouch. In the more frequent cases in which these fibres are more developed, or, at least, more abundantly than those lying above or below, there is still no sphincter.' Richet expresses a similar opinion in his *Traité d'Anatomie Médico-Chirurg.*, and Hyrtl (*loc. cit.*), and Henle (*Anatom.* vol. ii.), dispute its constant presence.

For these reasons, it is scarcely probable that a special action can be attributed to a muscular layer which is so inconstant. The retention of the fæces requires the action of a voluntary, powerful, rapidly acting muscular structure, such as is not found in the unstriated, but in the striated muscles.

All this taken together, the opinion expressed by Henle is to be preferred, that it is not the superior sphincter, but the levator ani which renders the retention of fæces possible after loss of the external sphincter. A person operated on in this way will, indeed, not employ abdominal pressure either. He has the sensation of an approaching evacuation. But without this help, the levator ani does not arrest defæcation.

It is also to be remarked that there is not always a fold of mucous membrane at the part where the superior sphincter lies, when this is present. Further, the points at which these often very projecting folds are to be found are variable.

At the last half-yearly general meeting of the Scottish Meteorological Society two interesting papers were read; one on 'The Mortality of the Large Towns of the British Islands in relation to Weather,' by Mr. Buchanan; and the other on 'Weather and Epidemics of Scarlet Fever in London during the past thirty-five years,' by Dr. Arthur Mitchell.

FÜRSTNER AND SAVAGE ON MENTAL AFFECTIONS DURING PREGNANCY AND THE PUERPERAL STATE.*

On looking over the psychic literature of the last ten years, one is struck with the large share which progressive paralysis has contributed. From the time when Haslam set forth the fundamental characters of this frequent and deadly form of disease, clinical observers and anatomical investigators have been equally ardent in laying down on an anatomical basis the course of the disorder; for these, materials in all possible quantity have been forthcoming on the male side of asylums. The same cannot be said for the affections of pregnancy and the puerperal state, for these only occur in any number at long intervals of time. Dr. Fürstner's essay is a clinical history of thirty-four cases. The question as to the frequency of pregnancy and puerperal psychoses cannot be determined from the available statistics. If we take as bases the disease noted in lying-in hospitals, the total will be too small, for those affected during pregnancy are not admitted, whilst the lying-in women are discharged after eight or ten days, and any disorders that happen to them afterwards are not known. Hence it cannot be astonishing that Reid and Gream met with only twenty instances of puerperal psychosis out of 5,500 women confined in the Westminster and Queen Charlotte's Hospitals, and that Johnston and Sinclair met with twenty-six insane only out of 13,748 confinements. Again, if we add the cases received into an asylum, the necessary factors are missing of the number of the delivered and of those pregnant. Much more interesting is it, however, to the alienist how often the puerperal state appears as a cause among a given number of insane women, although even here there are difficulties, the chief being that for the puerperal period and the closely allied period of lactation a definite limit of time does not exist; for instance, one might hesitate as to placing a woman in this group who weaned a child after four months, and who became insane six weeks afterwards. It stands to reason that asylums in large cities, where, owing to deficiency of room and of still more necessary care and superintendence, it becomes impossible to admit all acutely suffering women, can arrange for a much more select class of cases than those in the country districts. Thus, it appears to be quite an abnormal proportion that in the Charité, at Berlin, there should be eighty-six puerperal cases among 508 insane, *i.e.* nearly 17 per cent; whilst the proportion drawn from other hospital sources appears to be about 9 per cent. There are three distinct periods, the far greatest contingent being contributed by the actual delivery-period, the next by the period of lactation, and the least by that of pregnancy. Of 310 cases collected by Marcé, 27 occurred during pregnancy, 103 during lactation, and 180 during the actual puerperal state; whilst in Fürstner's cases, out of thirty-four the proportions were five, eight, and twenty-one. Of a direct causal connection between these three phases, and the psychoses appearing in connection with them, we know nothing; but a series of predisposing and exciting causes have been studied, which are at all times liable to occur during the puerperal state, from whose interaction the psychosis results. Of these, hereditary taint is the

chief, and comprehends 24 to 30 per cent., when direct hereditary taint only is meant; but the proportion becomes vastly different when in 'heredity' are included epilepsy, hysteria, drunkenness, and neuroses of various kinds. Besides the nine cases, out of his thirty-four, where he found direct hereditary taint, there were three of drunkenness in the father, one of epilepsy, five of hysteria in the mother, and two of epilepsy in the patients' sisters, so that in twenty-one out of the thirty-four there were distinct traces of family taint, whilst eleven appeared to be quite free. It might have been expected that the hereditarily predisposed patients would have shown some uncomfortable nervous symptoms before the special disease broke out, but Fürstner's experience was quite opposed to this. The peculiarities of the 'nervous constitution,' as detailed by Arndt in the *Archiv für Gynäkologie*, were conspicuous by their absence. A second important element in the etiology of puerperal psychoses is found in the alterations of the circulatory apparatus and the blood, to which the female sex is peculiarly disposed, *e.g.* chlorosis, whether depending on deficient quantity of blood or defective quality of the corpuscles, or on imperfect arrangement of the vessels, to which must be added defective development or hypertrophy of the generative organs and abnormalities of function. There appears to be in these women a lessened capacity for withstanding somatic and psychic lesions. Anyhow, it seems clear that pregnancy and the actual puerperal state, with the unavoidable loss of blood, be it ever so little, together with the febrile conditions engendered, bring such predisposed women into so weakened a state that psychic disorders find a congenial soil. Fürstner then gives the case of a woman, hereditarily predisposed, who had nervous symptoms, who was very excitable, and suffered from defective circulation, lesions of menstruation, bleeding from the nose, etc. She was married at eighteen, and though suffering from two severe attacks of bodily disease, yet had no psychosis; but the first pregnancy brought on melancholia (a cysticercus was found, after death, in the second left frontal convolution).

Marcé thought that multiparous women were most disposed to psychoses; but in Fürstner's cases, eighteen were primiparous and sixteen multiparous. Although writers have given etiological importance to such causes as anxiety, shame, etc., yet Fürstner thinks that these have been overrated, for the mothers of illegitimate children have not been especially affected. Difficult labour does not seem to predispose. It has been the custom to blame 'milk fever' as the setter-up of psychic lesion; but whilst this fever generally comes on the third or fourth day, psychoses mostly appear on the seventh or eighth day after delivery. Mastitis, parametritis, and endometritis are much oftener seen. In one case the mania began with a 'parotitis' on the seventh day. On the other side he has seen in two persons already melancholy a steady elevation of temperature, signalling in one diphtheria, in the other pleurisy, without any influence on the psychosis.

Insanity following on eclampsia is rare; he gives, however, one instance of it.

Melancholia seems the most prominent form of disease, and its preponderance in these cases has not a little influenced statistics. A large number of these melancholics are kept at home by their friends, provided they are not suicidal and do not refuse food; but an acutely maniacal woman is put away at once.

* Fürstner, Dr. C., *Archiv für Psychiatrie*, Band v. Heft 2; Savage, Dr. G. H., *Guy's Hospital Reports*.

This holds more especially of the light forms of melancholia coming on during the first three or four months of pregnancy, which is favourable and rapid in its course, and disappears as pregnancy advances. The more serious cases that occur during the late months are melancholic as a rule. Many hope that the labour will end this melancholia; but they are in most cases deceived, for they lie quietly in bed, and very often they deny that they have been confined. This indifference to the difficulty of parturition is shown not only in melancholia, but in other nervous disorders, and contrasts markedly with the transitory maniacal condition that is seen in healthy women during difficult labour. A psychosis arising during the period of pregnancy does not directly affect the life of the offspring, though of course it is unfavourable to the later life of the child. The labour itself never influences favourably the psychosis, but rather in many instances augments it. The prognosis of these psychoses that occur in the last months of pregnancy is bad, and although as regards chance of cure these cases are far behind mania, yet by their consequences, chiefly from the want of nutrition, they endanger life.

The psychoses of the actual puerperal period are much different in form from those of pregnancy; this period may be said to extend over the six weeks after confinement. It would now seem that there are two sets of causes for the origin of a psychosis at this time; the first acting during the first twelve days after parturition, viz., loss of blood, lactation, mastitis, inflammation of the uterus and its appendages; the second acting during the remaining period of six weeks through the re-establishment of menstruation; and it is curious that the occurring of insanity is seen either in the first ten or twelve days or at the fourth or sixth week, the intermediate period being free. Among these are included a number of lying-in women who are only in a wider sense insane, *i.e.*, those with fever-delirium. The differential diagnosis here is not easy, for the delirium is neither characteristic nor specific; and moreover, a lying-in woman with endometritis or parametritis, or ulcerative endocarditis (Westphal) may have just the same form of delirium; the best way of diagnosing being the length of duration or a simultaneous accession or retrogression of the delirium with the exacerbations of the fever.

From his observations of the insanity of the actual puerperal period, Fürstner draws the conclusion that there is no specific characteristic, but that the prognosis is exceptionally good. He gives, however, three cases in which the symptoms were different in their origin and course from the ordinary mania. The variety in these is divisible into three stages, viz., an initial fury, a subsequent state of stupidity, and at last convalescence. The acute setting in of the first symptoms, going on rapidly to incoherence and great motor excitement, would appear to be the characteristics of the first stage, and have their origin in hallucinations of a terrifying nature, which disappear as suddenly in the first days of the disease. When in the 'stupid' stage, the patients would sit with folded hands, and were cataleptic, though sensible to pain. Feeding was rarely required, and the habits were cleanly, whilst at times sudden impulses to smash glass, throw away food, tear clothes, etc., would arise. The transition to convalescence may come either suddenly or gradually. Exceptions now and then arise (cases quoted) where the insanity, which lasts for six or eight weeks, consists of a protracted hallucinatory condition. In the sudden

upspringing of the symptoms, and the great part that hallucinations play in acting as basis for all the phenomena, the condition resembles that of epileptics; and he gives an instance of an epileptic, who up to the time of her pregnancy had had only a few fits, but in whom insanity of the hallucinatory form was developed by the puerperal state. The psychoses coming on during lactation, *i.e.* more than six weeks after confinement, are in no way specific. Such, too, is Marcé's experience.

In the current number of *Guy's Hospital Reports*, Dr. Savage makes some 'observations on the insanity of pregnancy and childbirth,' which, without professing to contain much that is new, are yet very interesting, lucid, and evidently the result of considerable labour. Dr. Savage thinks it a mistake to suppose that marriage is a cure for hysteria, and he draws attention to the 'unnatural longings' of pregnancy which most physicians are too apt to consider neuroses, though many of them should not be so regarded. It is a pity that Dr. Savage does not enter more into detail here, for we are much in need of definite ideas as to these longings, and it would be satisfactory to know what might be truly considered insane states, since he quotes cases where 'unnatural longings in the mother have reappeared as mania and melancholia in the children.' He thinks that illicit pregnancy is a special cause of insanity, in this particular being directly opposed to Fürstner. In most other points these two authors seem to agree; and it is noteworthy how Savage corroborates the presence of hallucinations, though he does not elevate them to so high a place in the causation of the conduct and habits as Fürstner does. Another coincidence in these writers is the noticing of the febrile condition called 'milk-fever,' which must not be confounded with the insanity of the puerperal state. The history that follows of the predisposing and exciting causes is good, and special distinction is made between causes of anæmia, such as flooding, leucorrhœa, and lactation, and causes of exhaustion, such as protracted labour and the shock of instrumental delivery. His experience coincides with that of Marcé, that moral causes have little causative power. Some very sensible remarks are made on the marriage of cured patients, a thing to be especially avoided if any hereditary taint exist.

In acute puerperal mania the suddenness of the on-coming of the symptoms is noted, as well as the fact that the temporary madness, which at times appears and 'exhausts itself in the impulsive commission of the crime' (murder of the child), should be, as it is, dealt with mercifully in a court of justice. There are many interesting points which can only be named here; such are, the description of the dementia which is seen in all grades of development, the combination of the states of mania and melancholia, the question of albuminuria, pulse-tracings, etc. Both essays are excellent, and require, as they deserve, attentive reading.

T. C. SHAW, M.D.

FAYRER ON ELEPHANTIASIS ARABUM.

Dr. Fayrer, C.S.I., contributes an article on this subject to the *Practitioner* for June. He describes it as a non-contagious disease, endemic in certain localities, generally intertropical, and near the sea-coast; characterised by recurrence of febrile paroxysms, attended by inflammation and hypertrophy of the integument and areolar tissue, chiefly

of the extremities and genital organs, and occasionally by swelling of the lymphatic glands and enlargement and dilatation of the lymphatics, with chyluria; the hypertrophy of the integument being accompanied by an albuminous deposit in the cells of the areolar tissue, and by degenerations in the muscles and bones.

It is totally distinct from elephantiasis Græcorum.

It would appear from the researches of Mr. T. Lewis, that elephantiasis Arabum is associated with the presence of hæmatozoa in the blood.

The ordinary condition of elephantoid hypertrophy of the limbs or genital organs no doubt frequently exists independently of chyluria, of the presence of hæmatozoa, or of any obvious change in the state of the lymphatics; but their frequent concurrence, and the difficulty of detecting the parasites in many cases where they probably do exist, seem to indicate that further minute investigation of the subject may reveal a common origin, due to the influence of tropical and malarious climates, and throw light on its relation to them.

Elephantiasis Arabum affects both sexes, and persons of all ages and conditions of life. No race is exempt, but it is much more frequent, relatively, in the dark than in the fair races, and in men than in women. It occurs at all ages, is rare in the young and old, and is most common between twenty and forty. It commonly occurs without disturbance of the general health; at other times it is accompanied by febrile attacks, and with pain and exhaustion. Sometimes, however, the growth ceases after considerable bulk has been reached. In some cases fluid exudes from the surface, while in others it is dry. The rate of growth varies much. It would appear that the disease has little influence in shortening the duration of life. It does not interfere with the procreative powers except mechanically, and after the removal of the tumour no impotence remains. Women, however, are apt to miscarry when suffering from elephantiasis.

Various causes are assigned for the disease in the regions where it prevails. Air, water, food, and (as it is frequent near the sea-coast) eating fish, have been frequently credited with it. The presence or vicinity of certain forms of vegetation, the geological formation of the soil, have each and all been regarded as predisposing and determining causes, but not with sufficient reason. Climate and locality, combined with bad living, are doubtless the real predisposing causes; and it is probable that, as Mr. T. Lewis has suggested, like other unhealthy conditions observed among persons residing in tropical climates, especially those implying disturbance of the lymphatic system, it may be found to be intimately associated with the presence in the blood of certain parasites.

Dr. A. Webb thought the disease had a syphilitic origin.

No race is exempt from the disease, but white races suffer less than dark races. Waring says that the lower animals are not entirely free from it; not even excepting birds.

The hypertrophy commences in an increase in the normal elements of the part.

The treatment of elephantiasis is both medical and surgical. But little impression has as yet been made by constitutional treatment. Remedies, though useful during the febrile paroxysms, in moderating their severity and the excess of local action, have

little power in preventing recurrence or in checking the onward progress of the disease.

Preparations of iodine, in combination with quinine, arsenic, and iron, have all been found useful to a certain extent. During the febrile state salines, diaphoretics, and such remedies as are needed during the pyrexial state of malarious fevers, are indicated. The internal use of opium in some form may be necessary to relieve the intense pain which often accompanies the onset of the stage of excitement, when the suffering in the spermatic cords, testes, and generally in the lumbar regions, is sometimes so intense, combined with the depression caused by nausea and retching, as almost to prostrate the patient from exhaustion.

The local application of iodine or some of its preparations, by inunction or otherwise, of such forms as the iodide of lead or the biniodide of mercury, have been thought to be useful; but as they are generally applied in conjunction with pressure when the patient is kept in a recumbent posture, the benefit is probably quite as much, if not more, due to the mechanical action of posture and pressure, as to drugs.

A due combination of local and constitutional remedies, with rest, improved diet, and changed, *i.e.*, improved, hygienic conditions, may, and no doubt do, materially control the progress of the disease and relieve suffering. No remedy, however, is so potent as change of climate, by removal from the endemic site of the disease. This, if effected in the earliest stages, may completely arrest the disease, and perhaps, but this is doubtful, even disperse any incipient structural change that may have occurred.

This has occasionally been observed in the rare cases in which it happens in Europeans, that, returning to Europe, they have after a time lost the disease, and almost, if not entirely, any hypertrophic changes that may have occurred. Natives of India improve, and the disease often ceases to progress, if they leave the endemic area during the early stages and go and reside in other and drier localities.

Surgical treatment is often necessary, and not only removes the growth, but relieves the constitutional symptoms found to accompany it. The removal is effected by incisions along the cords and the dorsum penis. No attempt should be made to preserve flaps of integument, either for the penis or testis. It is unnecessary, and almost certain to be followed by recurrence of the disease. The healing process occupies from two to four months, but when complete is very satisfactory.

It has been suggested that elephantiasis of the limbs may be treated by ligature of the main artery. It is difficult to understand on what physiological principle this mere temporary starvation of the limb should have any efficacy in permanently removing the local expression of a constitutional disease. That it might temporarily ameliorate it, there is no reason to doubt, but the same effect could be produced by pressure on the limb or its artery, or by continuance in the recumbent posture; and such, indeed, has been the result of experience in certain cases in India. Ligature of the femoral artery, which was necessarily accompanied by protracted rest in bed, the application of bandages, and the general diminution in size that would follow such an ordeal, was followed by a considerable reduction in the size of the leg. The improvement, however, was temporary, and the disease returned to its original dimensions on the patients resuming the usual mode of life.

There is probably not sufficient reason on any sound physiological principle for expecting permanent improvement in the case of true elephantiasis by merely temporarily arresting the flow, and subsequently altering its channel of distribution in the limb through the anastomotic circulation, to warrant the performance of so serious an operation as ligature of the main artery; and, as has been stated, the results of ligature of the femoral artery for elephantiasis of the leg failed in Calcutta to produce any permanently good result. It is not supported or confirmed by experiment.

J. MILNER FOTHERGILL, M.D.

ANATOMY AND PHYSIOLOGY.

KEEN ON EXPERIMENTS ON THE LARYNGEAL NERVES AND MUSCLES OF RESPIRATION, ETC., ON A CRIMINAL EXECUTED BY HANGING.—Dr. W. W. Keen read to the College of Physicians of Philadelphia (February 3, 1875), an account of these experiments (*Philadelphia Medical Times*, March 20).

Dr. George Johnson had expressed the belief that, while pressure on one recurrent nerve will cause direct unilateral palsy of the larynx, but not bilateral spasm or palsy, pressure on the vagus involving its afferent fibres may cause both. The reason of this he supposed to be that the nerve-nuclei of both sides are so connected that each possesses bilateral activity. Dr. Mitchell having suggested the probability of a chiasma of the minuter fibres of the recurrents in man, which, though not demonstrated anatomically, might be proved physiologically, the following experiments were undertaken upon a criminal recently executed by hanging. After hanging about half an hour, the body of the criminal was cut down, and immediately examined. The left vagus and recurrent laryngeal were dissected as low down as possible in the neck, and the vocal cords examined while the nerves were excited by electricity. Repeated faradisation with weak and strong currents, and galvanisation with from four cells up to forty, of the recurrent and also of the vagus nerves, produced decided movements of the left cord only, and none of the right. The wires were applied directly to each nerve, and the irritating action of a tumour simulated as nearly as possible. Careful dissection showed that in all probability none of the fibres of the vagus were injured. The definite conclusion to be drawn from the experiment is, that no chiasma of the inferior laryngeal nerves exists. No reflex motion was observed in the larynx, although the absence of this may have been due to violence done the parts by hanging.

Experiments upon the muscles of respiration were then undertaken. The left phrenic nerve, having been insulated, was excited as in the previous experiments, but without result; no movements whatever of the chest were produced, nor was greater success obtained by one wire applied to the nerve while the border of the diaphragm was followed with a sponge, nor when both sponges were applied to the diaphragm.

The intercostals were then examined. These having been exposed from the median line to the line of the axilla, the interrupted current was applied to the intercartilaginous portion of the internal intercostals by means of small sponges, when it was found that

they all raised the cartilage below them. The external intercostals were then faradised, when the upper rib was pulled down very markedly, while the lower one was just perceptibly raised; the movement increased from the first to the seventh, the last four not being examined. These experiments seemed to point to the conclusion that the internal intercostals are inspirators, and the external expirators.

The muscles of the face still retained their electro-muscular contractility; but one was examined carefully, the pyramidalis nasi, which appeared, as a result of the electrical excitation, to act as the direct antagonistic of the central portion of the occipitofrontal. Dr. Keen pointed out, in conclusion, the important results which this new method of investigation—the faradisation of the muscles on the recently dead—promises to yield.

TARCHANOFF AND SWAEN ON THE WHITE CORPUSCLES OF THE BLOOD OF THE SPLEEN.—The spleen is, as is well known, regarded as a former of white blood-corpuscles, and the splenic venous blood is generally admitted to contain a disproportionately large number of white blood-corpuscles. J. Tarchanoff and A. Swaen (*Archives de Physiologie*, July, 1875) were led to test the accuracy of this statement. Their experiments were made upon dogs and rabbits, which had had no food for sixteen or eighteen hours previous. The method adopted for counting the blood-corpuscles was that of Malassez. They found that in the dog, under conditions as normal as possible, there is never such an enormous quantity of white blood-corpuscles in the venous blood of the spleen as is usually attributed to it. Dilatation of the spleen (such as is produced by section of its nerves) is immediately followed by a diminution of the number of white corpuscles in the splenic veins.

Immediately after section of the nerves there is a considerable diminution of the number of white blood-corpuscles in the splenic veins, but the longer the time after section of the nerves, the more pronounced is the diminution of their number. This diminution of the white blood-corpuscles in the total mass of the blood can only be accounted for by a mechanical accumulation of the corpuscles in the splenic pulp, by their destruction in the interior of the spleen, or by their transformation into red corpuscles. The experiments were made in Cl. Bernard's laboratory.

TARCHANOFF ON THE CANALS WHICH ARE SUPPOSED TO CONNECT THE BLOOD-VESSELS WITH THE LYMPHATICS.—J. Tarchanoff (*Archives de Physiologie*, July, 1875) reviews the opinions of Kölliker, Virchow, von Recklinghausen, and specially of Arnold upon the direct communication of the blood with the lymphatic vessels. He has injected the blood-vessels and lymphatics of the web of the frog's foot with Prussian blue solution, either alone or mixed with gelatine. Even after ligature of the veins of the limbs, followed as it is by œdema, the author's uniform result was that the injected mass was never found outside the walls of the vessels, unless there had been rupture of the walls of the vessels, when the mass spread itself between the interstices of the connective tissue outside. As to the injection of the corpuscles of the connective tissue by such a method, the author believes that such a view is quite untenable. He utterly denies

the existence of a set of canals connecting the blood-vascular and lymphatic systems.

TSCHIRIEW ON THE DIFFERENCE BETWEEN THE GASES OF THE BLOOD AND LYMPH OF ASPHYXIATED ANIMALS.—S. Tschiriew (*Sächs. Acad. Sitz.-Ber.*, 1874, 116; *Centralblatt*, no. 21, 1875), under Ludwig's direction, investigated the above subject. The arrangement of the experiment was the following. Cannulæ were introduced into the left thoracic duct, and into one of the carotids (dog); the trachea was exposed, and closed by means of a screw-clamp. As soon as the asphyxia had progressed so far that the eye did not react to touch, several portions of blood were, by means of forked cannulæ, caught in vessels over mercury; two of these were used to obtain lymph, and one was used for shaking to obtain blood. Now the lymph was collected, and the secretion hastened by bending and extending the limbs. It took twenty to thirty minutes to obtain sixty to eighty cubic centimetres of lymph. The percentage composition of oxygen from the gases obtained was always minimal, and the quantity of nitrogen also does not here come into count. The quantity of carbonic acid in the lymph was always lower than that of the blood as a whole, and pronouncedly lower than that of the serum. Compared with the values fixed by Hammersten for the lymph of the respiring animal, the quantity of carbonic acid in the asphyxia-lymph is only unimportantly higher than that of the normal, whilst the quantity in the serum appears to be pronouncedly higher. Remembering that the lymph arises from the confluence of the juices of the tissues, and thus is saturated with carbonic acid, one must conclude that a part of the carbonic acid arises even in the blood-vessels themselves by decompositions in the blood-corpuscles, lymph-corpuscles, or endothelium. If the carbonic acid arising in the tissues can reach the blood only by the way of the slowly moving lymph, then, in opposition to the accepted views, the quantity formed in the tissues would only be small compared with what is formed in the blood itself. This assumption would be rendered more probable, if it were possible to find in the lymph a substance which in connection with blood-corpuscles would be oxydised and produce carbonic acid. This proof was sought for in vain by Hammersten, who employed the lymph of the normally respiring animal. The author repeated the same experiment with asphyxia-lymph, and did not succeed.

PFLÜGER ON SLEEP.—Our existing knowledge about the physiology of sleep does not go much beyond the fact that the phenomenon in question is invariably associated with a comparatively bloodless condition of the brain. Pflüger attempts to take us a step farther by constructing an elaborate hypothesis of a physico-chemical order (*Pflüger's Archiv* x. 8, 9). Starting from the view that the functional activity of any organ, and more especially of a nerve-centre, depends upon a dissociation of living matter, which is itself only a modified form of albumin, the author goes on to speculate that the chemical potential energy which is used up in the formation of every molecule of carbonic acid is transformed into heat. In other words, the atoms of which this molecule consists are thrown into a state of very active vibration. These intramolecular explosions are propagated in all directions along the nerves to the muscular and glandular systems, which are in structural continuity with the nerve-centres. Frogs,

deprived of oxygen, are thrown into a state of apparent death, precisely similar to sleep; from this they may be roused by a fresh supply of oxygenated blood. A certain proportion of intramolecular oxygen in the nerve-centres is thus essential to the waking state, since it enables a given number of explosions to occur in an unit of time at a given temperature. But, during the waking state, the energy of chemical affinity is used up much faster than the intramolecular oxygen of the grey matter of the brain can be replaced; consequently the formation of carbonic acid steadily diminishes; and when the number of explosions per unit of time sinks below a certain minimum, sleep ensues. The entire energy of the brain is never really used up; but it sinks to a point at which, in the absence of all external stimuli, it is incapable of maintaining functional activity. This theory may be so developed as to explain most of the phenomena of ordinary sleep, such as its periodicity, etc. The author likewise attempts to bring the winter sleep of hibernating mammals, and the summer sleep of tropical amphibia, into harmony with it.

RÖHRIG ON THE COMPOSITION AND FATE OF FATS INTRODUCED INTO THE BLOOD.—A. Röhrig (*Sächs. Acad. Sitz.-Ber.*, 1874, and *Centralblatt*, no. 26, 1875) remarks that the statement in the ordinary text-books, that the blood contains soaps, must appear surprising considering the quantity of potash-salts present. In fact, even blood-serum, treated with soap solution, yields a precipitate of chalk-soap, which gradually becomes crystallised. Blood-serum, therefore, does not contain any soaps. The direct test yielded the author only negative results.

In order to estimate the fats in the blood-serum, it was shaken with several times its own volume of alcohol, and then completely extracted with alcohol and ether. The residue which remained after evaporating the ether, consisting of the fats, cholesterol, and lecithin, was then weighed, and the cholesterol and lecithin estimated according to the usual methods. The blood was at once treated with its own volume of water and two cubic centimetres of a 1 per cent. solution of oxalic acid to prevent coagulation, and then the above process was repeated. Double estimation of this description gave good coinciding results.

By this method it was then tested how rapidly fat, when once introduced into the blood, disappeared from it again. For this purpose an emulsion, formed by shaking together oil and water, to which a little carbonate of soda had been added, was employed. This emulsion was injected into an artery towards the periphery. The injection was made by mercurial pressure. The blood was investigated before the injection, immediately after it (from the central end of the artery), and some time later. In one experiment the blood contained immediately before the injection, 0.504 per cent.; immediately after, 0.668 per cent.; and thirty minutes later, 0.636 per cent. The increase was obvious, but small. In the following experiments the time of injection, which in the first injection reached sixty-five minutes, was diminished. The differences became larger, but were not very important. The difficulty of the experiment led the author to adopt another method. After the dogs had fasted, they obtained a large quantity of hog's lard. Four hours after feeding, the

thoracic duct, the subclavian vein, and the lymphatic ducts of the chest and neck, on both sides, were carefully ligatured. In all cases the quantity of fat rose after the feeding, and after closure of the thoracic duct again fell. The cholesterin showed a tolerably constant value. In one experiment there was formed :

	Fat.	Cholesterin.
Shortly before feeding . . .	0.74	0.11
Immediately after ligature . . .	1.24	0.21
Three hours . . .	0.89	0.19
Eight and a half . . .	0.52	0.18
Twenty-two . . .	0.50	0.19

The cholesterin, without doubt, arises from the bile which is richly poured out with the feeding. After several days' fasting, the fat in the blood is 0.5 or 0.7 per cent., and after feeding with fat may rise to 1.25 per cent. The quantity of fat falls after ligature of the ductus thoracicus; at first rapidly, then slowly. The fats probably do not leave the blood without undergoing a change. Supporting this is the fact of the constancy of the quantity of cholesterine, and further that the lymphatics of the corresponding extremity do not contain any fat. Röhrig thinks it is probable that the fats are oxydised in the blood with the formation of carbonic acid.

W. STIRLING, D.Sc., M.D.

SAMELSOHN ON THE PHYSIOLOGICAL AND THERAPEUTIC ACTION OF NITRITE OF AMYL.—The author (*Berliner Klinische Wochenschrift*, June 14, 1875) protests against the prevailing idea that our knowledge of the physiological action of amyl-nitrite is sufficiently complete to serve as a basis for its remedial use. We are still ignorant of the precise mode in which it occasions dilatation of the small arteries. On the one hand, Brunton, Pick, and Schüller agree in believing that its action is peripheral, on the strength of the ascertained fact that its inhalation causes a fall of blood-pressure, even after the influence of the vaso-motor centre has been cut off by dividing the spinal cord in the neck. On the other hand, Bernheim finds that the arterioles, when dilated by the nitrite, may be made to contract by electric stimulation of the corresponding vaso-motor trunks; from which he infers that the action of the nitrite is primarily central. Pick contests the validity of this inference, arguing very justly that the excitant influence of electricity may be able to overpower the paralysing effect of the nitrite. Filehne, however, believes himself to have established Bernheim's conclusion on an unassailable basis. One of his experiments consists in laying bare a rabbit's lung, and then causing the animal to inhale the vapour; the pulmonary arterioles, which are the first to be exposed to the direct influence of the nitrite, do not dilate before the systemic ones. Another experiment was carried out as follows. The cervical sympathetic was divided on one side in a rabbit; its peripheral extremity was then stimulated by a current just strong enough to maintain the paralysed vessels in a state of contraction exactly equivalent to that of the normal vessels on the opposite side. The nitrite vapour was then administered; and it was found that the arterioles underwent dilatation on the sound side only, showing that the vaso-motor nerves and the muscular walls of the minute arteries were not directly influenced. Further experiments were made to prove that the nitrite does not cause vascular dilatation by stimulating the depressor nerve. Hence Filehne concludes that the drug causes paralysis of certain vaso-motor centres

similar to, or identical with, those which preside over the act of blushing.

Granting that these experiments are correct, Samelsohn disputes the conclusion drawn from them. We do not know, he says, what becomes of the nitrite in the blood; its specific effects may possibly be indirect, and due to some product of its decomposition. Should this be so, the experiment on the rabbit's lung would only indicate that the decomposition of the nitrite had not had time to occur before its entrance into the pulmonary capillaries. The *experimentum crucis* on the cervical sympathetic is also open to question. We have no proof that the electrical stimulation of the nerve is identical, either in kind or in degree, with the influence normally conveyed to it from its proper centre.

We cannot, therefore, be said to understand the exact mechanism of the vascular dilatation caused by amyl-nitrite, and we are equally ignorant of its extent and distribution. Our ignorance on these points should make us cautious. Observers have hitherto been at one on the absence of danger from the vapour. To this reassuring unanimity there is one exception. (*See LONDON MEDICAL RECORD*, March 17, 1875, p. 168.)

Sander has recorded cases in which sudden collapse followed closely upon its administration. Samelsohn furnishes a detailed account of a similar instance. The patient, a somewhat anæmic young woman, suffering from symmetrical blepharospasmus, was being exhibited before the Medical Society of Cologne. It was suggested that the effect of nitrite of amyl upon the spasmodic closure of the eyelids should be tested. A narrow-necked phial, containing about fifteen grammes (225 grains), was held under one nostril, and the patient directed to take several deep inspirations. As soon as the usual change in the pulse occurred, the phial was withdrawn. The face, previously pale, was now suffused with a crimson flush, and the eyes opened widely. In an instant, however, the flush was replaced by a deadly pallor; the pulse became thread-like and slow, the skin cold and clammy, respiration difficult and gasping; consciousness was retained. These alarming symptoms passed off, but only to recur again and again; a full hour elapsed before the patient could be said to be out of danger. Even after the pulse and breathing had become normal, she still complained of feeling very cold; and this sensation lasted till the next day. The blepharospasmus disappeared for thirty-six hours, at the end of which time it returned. To what ought these symptoms to be attributed? The sample of the drug was perfectly pure, and was repeatedly inhaled by other patients without producing any unusual effect. The dose was measured by its effect upon the pulse, and there was no reason to suspect that it was excessive. Sander ascribed the collapse which occurred in some of his cases to a contraction of the vessels of the pia mater, immediately consequent upon their undue dilatation, and causing cerebral anæmia. But on this hypothesis convulsive symptoms might have been expected to occur, and none such were noticed. Samelsohn prefers to explain the phenomena otherwise. As a general rule, the vascular tension is quickly restored after its depression by amyl-nitrite. In anæmic persons, however, we may suppose that the muscular walls of the vessels react less promptly, and that the elasticity of the arterial coats is impaired. Now it is well known that a sudden accumulation of blood in any part of the vascular area diminishes the supply

of that fluid to the heart, placing it in the position of a pump with too little water to fill it, and thus embarrassing its action. Moreover, the girl was menstruating at the time, and her pelvic viscera were loaded with blood. That this was one of the factors concerned is rendered likely by the circumstance, that she subsequently inhaled the nitrite vapour more than once without any return of the symptoms which caused so much alarm on the first occasion.

E. BUCHANAN BAXTER, M.D.

DE SINÉTY ON THE MAMMÆ OF NEW-BORN INFANTS.—De Sinéty (*Journal de Physiologie*, July, 1875) confirms the well-known fact that the mammæ of new-born children of both sexes, specially at the third and fourth day after birth, secrete milk. The author finds that the milk which is obtained from the mammæ of new-born children, several days after birth, is the result of a true secretion, and that the anatomical and physiological state of the mammary gland corresponding to that period is in many respects comparable to that which is to be observed during lactation in the adult female.

WM. STIRLING, D.Sc., M.D.

PATHOLOGY.

JEWELL ON THE PATHOLOGY OF EPILEPSY.—Dr. Jewell, in a lecture on the above subject (*Chicago Journal of Nervous and Mental Disease*, January, 1875), discusses, and endeavours to explain, the two characteristic classes of phenomena, namely, the loss of consciousness and the convulsive disorder.

1. The loss of consciousness.—How is it brought about? So far as we know, it is due to a sudden change in the quantity of blood in the brain. Is it, Dr. Jewell asks, on account of too much or too little blood in the brain that consciousness is temporarily lost? It may be either; but he believes that in the majority of cases it is due to the latter—sudden anæmia. The question then arises, How is this anæmia produced? It is not caused by the failure of the heart's action, as in syncope, for the heart continues to beat perfectly. The blood is sent freely toward the brain, but in some way is prevented entering it in due quantity. In what way? By a sudden contraction of the small arteries of the brain. Then, again, What is the cause of this contraction? The answer is, An irritative influence conveyed to them through the channel of the vaso-motor nerves; this sudden influence coming from the vaso-motor centre for the head, which Dr. Jewell places in the cervical portion of the spinal cord, or in the medulla oblongata. Dr. Jewell further, however, raises the question, What causes this centre to emit such a sudden tide of nervous influence? And this he traces to an impression conveyed from some more or less distant quarter, and hence holds that its action is reflex, either from the peripheral nervous system below, or from the brain above.

Although the sudden loss of consciousness is attributable in the first place to sudden anæmia of the brain, it does not explain the same condition in the later stages of severe cases. In the severer, the respiration is embarrassed by spasm of the muscles of the chest, hence the lividity of the surface from carbonisation of the blood. The effect of the carbonic acid in the blood, Dr. Jewell states, 'is probably twofold: first, to stimulate powerfully, in a

reflex way, the resumption of action on the part of the respiratory muscles; and, second, to benumb, by a kind of anæsthetic action, the excitability of the nervous system.' This benumbing effect perpetuates the loss of consciousness, which in the first instance depended on sudden anæmia of the brain. The continuance of the loss of consciousness is in part due to the now enlarged state of the vessels in the brain. The muscular vessels have temporarily lost their tonus, and are as much larger than they ought to be as they were before too small. After a variable time the vessels recover their tonus, and consciousness slowly returns.

With reference to the convulsions of epilepsy, Dr. Jewell contests the views lately put forward and forcibly expounded by Dr. Hughlings Jackson. Dr. Jewell, in the first place, dwells upon a point that is scarcely disputed, viz., that the respiratory muscles, or those innervated from the medulla, are involved in epilepsy; and further, that the medulla oblongata is the chief seat of the disease, the true *nodus epilepticus*, as he designates this part of the nervous centres, under morbid conditions.

The convulsive action of the motor centres may depend on one or both of two conditions; either it may depend upon some structural peculiarity which shall render it more liable to such action, or it may depend upon some extraneous, perhaps remote influence, exerted upon them. The morbid excitability inherited with structural peculiarity, Dr. Jewell proceeds to show, may be brought into operation by variations in the supply of blood, and by the abolition of the inhibitory power of the brain over the medulla and cord. Furthermore, some special excitant to action on the part of the motor centres is required; and this excitant can be none other than a nervous impression or influence conveyed into them from some other part of the nervous system, either the spinal cord, or the spinal or cranial nerves, or from the brain above.

With reference to the morbid impression from the brain, Dr. Jewell writes as follows. 'In this case the irritation is supposed to be located in some part of the brain, either in the great ganglia at the base of the brain, or, as is probable, in the cortex of the same. It is only in recent times that this view has received much attention. Of all other observers, Dr. Hughlings Jackson, of London, has done more than any one, perhaps, to invite attention to the brain as concerned in epilepsy. He supposes, for example, that the cortex of the brain in epilepsy is often the seat of limited disease, which is of such a nature that the affected part of the brain, more or less, gradually stores up nervous force, which at a certain time is discharged—if you please, as a Leyden jar is discharged—downward on the motor centres of the medulla, perhaps in such a way, that by reflex action not only the convulsive but the vaso-motor disorders are produced. Such lesions of the cerebral cortex he would call "discharging lesions." For my own part, I do not doubt that the brain may be the seat of lesions, which in a reflex way produce epileptic seizures; yet I do doubt the truth of Dr. Jackson's hypothetical explanation of the morbid process in the cortex. Such lesions of the cortex, if they exist, would require a gradual storing up of nerve-force in the diseased part, until its tension becomes so great that we have relief by a discharge leading from the cortex downwards to the motor ganglia at the base of the brain, or even to those in the medulla, in this way rousing them to action as we see in epilepsy.' Upon this

exposition of Dr. Jackson's hypothesis, Dr. Jewell thus comments.

'Have we any reason for thinking that such *discharging* lesions exist in the cortex of the brain? I think not. There is really no more evidence of it, so far as I can see, than there is of a discharging lesion in the medulla, or in the spinal cord, or in a diseased part of a spinal nerve, from which the aura appears to start. It seems to me no more difficult to understand how one kind of source of irritation should act occasionally or irregularly than another. And certainly Dr. Jackson does not appear to think of discharging lesions for the spinal cord and peripheral spinal nerves, which are often the sources of the irritative action that constitutes apparently the first step in a typical attack of epilepsy.'

'For my own part, it seems to me far more probable that the cause of the discharge from the lesion of the cortex is due to a sudden vaso-motor disturbance in it, rather than a gradual storing up of nerve force, until finally the tension becomes so great as to lead to a discharge on the motor centres below, either with or without provocation.' This would make the final discharge to depend upon a sudden modification in the blood supply of the diseased part—through the agency of the vaso-motor nervous system. To the preceding argument Dr. Jewell adds the following question, 'Why does the vaso-motor system act on the vessels of such parts in an intermitting way?' The reply that he feels constrained to give is, 'I cannot answer this question, and I do not know that we should seriously try to answer it, until we are more sure that it is a legitimate question.' The views above cited Dr. Jewell believes to be in accord with the results of treatment and of experiment, and to be supported by pathology.

[Our readers will find Dr. Jackson's theory of the nature of convulsive action clearly set forth in a paper entitled 'A Study of Convulsions' in the *Transactions of the St. Andrew's Medical Graduates' Association*, 1870. To this paper we may add many other articles on this and allied subjects in other medical journals.—*Rep.*]

W. B. KESTIVEN, M.D.

MAJOR ON THE HISTOLOGY OF THE SANE BRAIN.

Dr. Major, of the West Riding Asylum (*Journal of Mental Science*, July, 1875), urges the necessity of examining the brains of persons dying sane as well as of the insane, and narrates the examination of the brain of a man, aged forty-seven, who died from the effects of a compound fracture of the leg nine days after the accident. He was previously a perfectly healthy and intelligent man. The brain presented no features of abnormality. There was no wasting of the convolutions, no thickening of membranes, and no appearance of vascular disease. Nevertheless, on submitting thin sections to the microscope, the fact was established beyond a doubt that in many instances the pyramidal nerve-cells of the cortex were morbidly affected. In the majority, indeed, no change could be detected, but in a considerable proportion it was quite distinct and conclusive. The abnormality consisted in the accumulation of yellow granules in the interior of the affected cells, in no case going to the extent of producing destruction of the corpuscle, but at most a slight bulging and alteration in its form. The nuclei and nucleoli appeared to be unaffected. The condition above described could only be seen among the large pyramidal cells of the deeper layers of the grey

matter, and not in the smaller superficial bodies; and, lastly, at the posterior extremity of the occipital lobe the nerve-cells, with rare exceptions, presented no evidence of any morbid process. Dr. Major thinks that this case shows that some of the corpuscles of the cortex may be morbidly affected without any appreciable mental impairment, and that while to ordinary appearances the brain may seem quite healthy, the microscope may reveal commencing change. It affords additional evidence of the fact always maintained by the writer, that the nerve-cells of the occipital lobe are the last, as they are the least, affected by the atrophic process. And it impresses the necessity of the utmost caution in connecting histological changes in the brain after death with mental phenomena manifested during life.

G. FIELDING BLANDFORD, M.D.

VIRGILIO ON A CASE OF MICROCEPHALIA.—

Gaspari Virgilio describes, in the *Rivista Sperimentale di Freniatria e Medicina Legale*, 1875 (abstract in *Lo Sperimentale*, June), a case of microcephalia observed by him in an idiot in the asylum at Aversa. The subject was of low stature, and had a short neck, broad shoulders, a very small head, and long arms; he squinted, and there was defective co-ordination of movements. He preferred to climb like a monkey; he manifested neither affections, wishes, nor desires. He scarcely possessed the fundamental instincts. He did not speak; but emitted harsh acute cries. He died in consequence of a fracture of the thigh while climbing.

Dr. Virgilio remarks that the absence of speech, places this case in the most advanced class of idiocy. As in the lower animals, reflex images of the exterior of objects could be formed on the sensorial apparatus, and when these images excited his wants he was led to employ actions and movements which by no means expressed the idea which he might have. If this individual be placed at the level of the apes by the absolute want of articulate speech, by the defect of intellect and by many other characters, such as the mode of walking, the bending of the head forward, the length of the arms, the uniform curvature of the spine and the bending of the lower limbs at the knees, and by his habit of climbing, he ought to be placed in a still lower scale, as he did not present those mental manifestations which are common to all apes.

The face lay remarkably in front of the cranium, so that an imaginary plane dividing these two parts would be nearly perpendicular to the horizontal plane between the occipital condyles and the upper alveolar ridge. The skull was oxycephalic, terminating in a point at the vertex, the parietal protuberances being absent. The forehead was very narrow; there was a sudden contraction above the orbital apophyses. The coronal suture was very strongly marked internally, and the fronto-nasal suture passed 0.16 inch below the horizontal line joining the two orbital apophyses. The fronto-parietal suture ran parallel to the facial line. The roof of the orbit was extremely concave. The zygomata were very prominent, and the canine fossa were strongly marked. The face was eminently prognathous, the upper dental arch projecting far beyond the lower. The chin, however, was prominent. The lineæ temporales were raised so far upwards as to make the skull appear as if enveloped in the temporal muscles—a simial character. The temporo-parietal sutures were completely closed.

When placed on a flat surface, the skull rested on the last molars in front and on the condyles behind, like the skull of an ape. The posterior border of the occipital foramen was 0·27 inch above the plane. The foramen was situated entirely in the posterior third of the base of the skull.

In the interior, deep digitations were observed; all the sutures were distinct. In other respects the skull was symmetrical. The following were the principal measurements: horizontal circumference, 13·3 inches; antero-posterior curve, 8·6 inches; transverse curve (from one ear to the other), 7·5 inches; longitudinal diameter, 4·5 inches; maximum transverse diameter, 3·6 inches; vertical diameter, 3·8 inches.

From a table given by the author, it appears that this skull is one of the smallest known; in this respect it approaches the skull of the chimpanzee, the circumference of which is about 12·5 inches.

STEFANINI ON ELECTRICAL CHOREA.—Dr. Stefanini, of Pavia, describes in the *Annali Universali di Medicina*, no. 231, 1875, two cases of electrical chorea, which, in his opinion, support the idea expressed by Pignacca,¹ Hoertel, and Tommasi, that this form of disease arises from a lesion of the spinal cord, and consists externally in an inflammatory process, the last stage of which is softening; that is to say, that electrical chorea has a form of myelitis as its anatomical cause.

In Dr. Stefanini's first case, the patient was a robust young man, who was suddenly seized with rhythmic convulsive movements of the left shoulder. These movements gradually extended to the whole left side of the body, then to the tongue, the diaphragm, and the right lower limb, and were at last followed by paralysis and atrophy of the affected muscles. The temperature rose during the last days of the patient's life to 105° and 111° Fahr.; the urine, which was at first acid, became alkaline. Dr. Stefanini calls attention to these two phenomena as of great importance in the diagnosis of lesions of the medulla. The patient died after he had been three months in hospital. At the necropsy, there were found congestion of the pia mater of the spinal cord, and softening of the substance for a space of four-fifths of an inch in the vicinity of the cervical enlargement. Microscopic examination of the softened parts showed the presence of fat granules and globules, granular nerve-tubules, ganglionic cells with a rather obscure protoplasm, and turgid capillaries.

The other case differed from the preceding one in its shorter duration (three days), in the occurrence of general convulsive attacks with loss of consciousness, and in the presence from the commencement of muscular contraction extending to the whole left side of the body. The temperature rose to 106·25° Fahr. On *post mortem* examination there was found to be hyperæmia of the cerebral membranes and of the white substance of the brain and spinal cord, the latter having also an increased consistence.

HEDENIUS ON A CASE OF DISSECTING ANEURISM OF THE THORACIC AORTA.—P. Hedenius reports, in the *Upsala Läkareforenings Förhändl.*, Band ix. (abstract in *Nordiskt Medicinskt Arkiv*, vol. vii.), a case in which a dissecting aneurism was found in a woman aged seventy-eight, who died of cerebral hæmorrhage. It extended for about nine and a half inches from opposite the left subclavian

artery down to the celiac axis, and was about 0·8 inch wide, being somewhat smaller below. It was formed by a separation of the outer from the middle coat, was filled with a grey-brown firm laminated thrombus, and communicated with the lumen of the vessel by sharp-edged slits in the inner and middle coats both above and towards the middle. At the upper part the outer coat was perforated, and there was a little extravasation into the anterior mediastinum. At the lower part of the aneurism the outer layer of the muscular coat was separated from the inner, so that the outer coat had a lining of muscular tissue. The aneurism was partial, not engaging the whole circumference of the aorta, as occurred in a case formerly described by the author. There were extensive endarteritis deformans, and hypertrophy of the left chambers of the heart.

A. HENRY, M.D.

ROBERTSON ON HÆMATOMA AURIS.—Dr. Alexander Robertson, in the *Glasgow Medical Journal* for July, says that the condition known as hæmatoma auris, or bloody tumour of the ear, is one met with almost solely in asylum practice.

Hæmatoma auris consists of an effusion of blood from the perichondrium, the fibrous membrane that invests the cartilage of the ear. This effusion is dark and venous in its character, and continues long fluid. The swelling is usually first seen on the posterior part of the concha, rather above its centre, and thence extends inwards to the meatus, which it occasionally occludes; and outwards over the pinna sometimes, but not generally as far as the helix. The tumour so formed varies greatly in size in different cases, there being in some only a slight thickening of the concha, while in others the distension of the auricle is extreme, all the normal irregularities being entirely effaced. When thus severe it occasionally bursts, giving vent to a quantity of blood having the appearance described. It does not usually attain its full size till after several days' growth. The integument over it retains its natural colour in the first instance, but should inflammation set in, as in the more severe cases, particularly those that burst, it becomes red and has the ordinary aspect of an inflamed surface. In exceptional cases the inflammation is so high that suppuration takes place, and there may even be gangrene of considerable portions of cartilage. In many, probably in most cases, the cartilage involved in the tumour is somewhat softened, but in milder forms this is scarcely appreciable. Generally after two or three weeks it begins to subside slowly, but the pinna is never restored completely to its natural condition, as after many years it continues irregular and shrivelled in aspect.

It is not confined to any particular form of insanity. Thus it is found in mania, melancholia, and in dementia. Dr. Robertson does not remember having seen it in idiocy. Probably it is most frequently met with in the insanity associated with general paralysis.

After recording two cases Dr. Robertson goes on to say: A very simple explanation has been given of this remarkable condition by some writers, such as Dr. Wilks, but one which, if correct, would have left me no apology for occupying the time of the reader with this paper. It is that the hæmatoma is the result of violence either self-inflicted or by others. I am satisfied, however, that in most cases this is not the real cause. Certainly some instances have

been reported by physicians to asylums, in which it seemed to have been caused by an injury to the ear. But in some of these there may not improbably have been a constitutional disposition to this sanguineous effusion at the time of its appearance, so that the slight blow or fall to which it was ascribed was only a secondary and minor agent in its production. At all events, my own experience would lead me to this conclusion. In the course of a long connection with asylums, many cases of it have come under my observation. In not one of them have I been able, either by a careful examination of the patient or by inquiry of attendants or fellow-patients, to find indications of injury to the ear, though obviously where it occurred in acute mania it could not be shown absolutely that no hurt had been sustained by the patients, particularly at night when alone in their bedrooms.

How then are we to account for it? It is, I think, most probably due to functional disorder of the cervical sympathetic, associated with and perhaps resulting from the existing cerebral or cerebro-spinal disturbance. The grounds for this opinion are these. (1) It not unfrequently appears in both ears simultaneously, without any indication of either having been injured. (2) In a case of dementia in my own practice, some years since, I observed an effusion of blood under the conjunctiva of the eye on the same side as the tumour of the ear, both effusions having appeared at the same time; and neither ear nor eye showed the least mark of hurt having been sustained. In this case there was no general purpuric affection; nor in any case, so far as I have seen, can the disease be ascribed to that condition of the blood. And (3) a hæmatoma of each ear occurred in a case recorded in this paper, in which Graves's disease and the peculiar band described indicated very clearly that the vaso-motor system was disordered. No doubt there was an interval of several weeks between the latter symptom and the ear-affection, but the goitre still existed though the exophthalmos was in abeyance at the time. It may be urged, supposing the sympathetic in the neck to be affected, how does it happen that the other symptoms produced by a known lesion of that system are not generally present, such as redness of the side of the head, contraction of the pupil, etc.? To this it may be answered that in functional disturbance of the nervous system, whether sympathetic or cerebro-spinal, it is by no means unusual to find a single nerve, or even a single branch of a nerve, alone affected. And further, various considerations lead me to think that in most cases in which the ear-tumour is found there is hyperæmia—implying vaso-motor disorder in the pia mater cerebri and hemispherical ganglia—parts whose blood-vessels, like those of the auricle, derive their regulating nerves from the cervical sympathetic.

CAVAFY ON THE INJECTION OF PUTRID FLUIDS. In the present number of the *St. George's Hospital Reports* is a paper on this subject by Dr. J. Cavafy. The experiments were conducted upon amphibia, and consisted of the injection into the lymphatic system of frogs of blood and pus which had been allowed to putrefy until an enormous number of energetically moving bacteria were developed. The experiments of Greveler and Hüter were not thoroughly borne out by observations made on the frog. A number of experiments were made on the

toad, and the observations are summed up in the following conclusions.

1. The injection of putrid animal fluids in relatively small quantities into the lymphatic system of amphibia is followed by inflammation, which is not to be distinguished from inflammation produced in other ways, except by the fact that it supervenes more rapidly.

2. Large doses act as a direct poison to the nervous system, causing paralysis of the heart, with consequent general circulatory stasis.

3. The accumulation of colourless corpuscles and the formation of thrombi cannot be attributed to any local action exercised by bacteria on the walls of the blood-vessels, or on the protoplasm of the colourless corpuscles, but must be ascribed (*a*) to inflammation, (*b*) to paralysis of the circulatory centre, (*c*) to alteration of the normal condition of the walls of the vessels produced by dragging, or (*d*) to a varying combination of these causes.

J. MILNER FOTHERGILL, M.D.

MEDICINE.

PYE-SMITH ON ADDISON'S DISEASE.—In the *Guy's Hospital Gazette*, June 26, Dr. Pye-Smith makes the following comments on a case of Addison's disease.

This is a typical case of Addison's disease, without phthisis, or other tubercular disease, or caries of the spine, its most frequent complications.

The constitutional symptoms were but little marked, though feebleness of the heart's action, muscular weakness, slight nausea, and occasional vomiting, with headache and pains in the back, were all observed more or less during the course of his illness. Notice, that while asthenia, cardiac feebleness, and nausea, are characteristics of the disease, there is no extreme emaciation or anæmia. Nor does leucæmia form any part of the symptoms.

The affection of the skin was in this case unmistakable. The conjunctiva remaining white distinguishes it at once from jaundice. The tint is not characteristic. It is like what is seen from exposure to sun and air, and like that of the darker races. From the former it is distinguished by affecting parts covered by the clothes; but this boy, when stripped, looked, but for his English features, light brown hair and grey eyes, exactly like a Moor or mulatto. The parts most affected are the face, the extremities, and especially the back of the hands, and the genitals. This distribution and the gradation of colour should prevent its being confounded on the one hand with the darkening of the skin seen in some cases of malaria, of malignant disease, of plumbism, or of syphilis, and in most cases of prurigo (or phthiriasis) senilis; and, on the other, with the circumscribed patches of chloasma in pregnant or womb-sick women, and of tinea versicolor, and with the macule of old syphilitic and other ulcers, blisters, burns, etc. The ink-like stains of the mucous membrane of the mouth and the pin's-head scattered dark spots have never been observed except in Addison's disease. Occasionally the discolouration of the skin is little marked; but even in such cases, where death usually occurs prematurely from some other concomitant disease, it is quite possible to make a correct diagnosis. A good example of this occurred at the same time

that the present case was under observation. A woman under Dr. Moxon's care died of chronic phthisis, but disease of the adrenals was recognised during life, and the diagnosis was confirmed by the necropsy.

The result of this malady is uniformly fatal, though there are often intervals of apparent improvement, and patients live for months and even years. Death occurs (1) from concomitant phthisis, (2) from increasing asthenia, vomiting, and failure of the heart, (3) from sudden 'cerebral' attacks like the present. In the last cases the brain is found apparently normal. We may compare this result with the fatal coma which sometimes ends cases of Bright's disease, of cirrhosis of the liver, and of diabetes.

We know of no treatment available. This patient took phosphorus, because Mr. Ashburton Thompson, one of our own number, has strongly recommended its use in neuralgia and other conditions of nervous depression, and Dr. Broadbent has also used it with apparent benefit in similar cases and in some forms of anæmia. In the present case, and in one of idiopathic anæmia in which I prescribed it, the drug had no ill effects, but I doubt whether it did any good.

The *post mortem* examination showed the adrenals in the state which accompanies the symptoms observed during life. There is, first an enlargement and infiltration; then, and probably very quickly, a caseous degeneration, with softening into a spurious abscess, or with earthy concretion, or dense fibrous contraction, or mere yellow cheesy, *i.e.*, fatty degeneration. This is the change seen in the so-called 'scrofulous' lymph-glands, in carious bone, and in soft or yellow 'tubercle' of the lungs. Whether it is, as Laennec taught, always the result of true (miliary) tubercles degenerating, is still a disputed point. At all events we see from this case that the adrenals may be thus diseased without any other sign of tuberculosis.

J. MILNER FOTHERGILL, M.D.

HAKENSCHMIED ON A CASE OF HÆMOPHILIA. In the *Vienna Medicinisch-Chirurgisches Centralblatt* for April 30, 1875, Dr. Hakenschmied relates the following example of the hæmorrhagic diathesis or tendency. S. K., a Bohemian mountaineer, aged thirty, by no means anæmic, and presenting no external signs of anything abnormal, was attacked with pleuro-pneumonia. Venesection was prescribed, when the patient said that 'he bled for two days after the extraction of a tooth, and it became necessary to plug the cavity. Slight wounds at various times had bled furiously, and to syncope.' Other stories of the like kind were mentioned. He was bled notwithstanding, and with apparent benefit, for he recovered this attack perfectly. Two years afterwards, in a quarrel, he was stabbed with a hunting knife, which entered the right elbow-joint, and, being very sharp, removed the cartilage and a thin lamella of bone from the external condyle of the humerus. He pressed his handkerchief on the wound, and in ten minutes reached home, in spite of the severe bleeding. On the arrival of the medical man he found a stream of blood, of the thickness of a wheat-straw, pouring from the wound, and the patient exhausted. He applied cold compresses and pressure. Four hours afterwards there were pain and fever, but no hæmorrhage. In the night the patient drank a large quantity of water, and whilst the man appointed to nurse him slept, the wound burst out bleeding. Three medical men saw him, and applied

styptic compresses, and the actual cautery, and plugged the wound with kino, etc. But the bleeding recurred again and again, and he died the next day. [In commenting on this case, Dr. Hakenschmied is inclined to blame the water imbibed by the patient for the fatal result. The reporter, however, believes that more energetic measures would have saved the man's life. It is at least singular that no mention is made of any attempt to relieve the hæmorrhage by position or by pressure on the brachial or subclavian artery; and the idea of ligaturing any vessel does not seem to have been entertained by any of the surgeons in attendance.—*Rep.*]

W. B. WOODMAN, M.D.

HAYDEN ON SCARLATINA.—In the *Dublin Medical Journal* for June, Dr. Th. Hayden gives an account of the late epidemic of scarlatina as observed in the Mater Misericordiæ Hospital. The cases are classified under three heads, viz.:

1. 'Mild,' in which the eruption was florid, the throat but slightly engaged, and no complication existed.

2. 'Severe,' or those in which the fever was high, and accompanied by a copious and florid eruption of a somewhat miliary character, diffuse inflammation and ulceration of the tonsils and fauces, delirium, and diarrhœa.

3. 'Malignant,' or cases in which the eruption was dusky and imperfect, the surface in some degree livid, the temperature low, the throat in a sloughy condition, and in which, moreover, diarrhœa, vomiting, suppression of urine, and coma were exhibited. The total of cases was 105; viz., mild, 73; severe, 24; malignant, 8.

The 'mild' cases (of which, in twenty-four instances, the patients were over four and under ten years old, and in forty-nine over ten years), all recovered.

The 'severe' cases yielded a mortality of fifteen out of twenty-four; of the fatal cases four were under ten years, and eleven over that age.

The 'malignant' cases amounted to eight—viz., three under ten years, and five over ten years. All these were fatal.

No case was presented under four years of age.

The treatment adopted in the 'mild' cases consisted in the administration of the chlorate of potash with dilute hydrochloric acid (five to ten grains of the former, and five to ten minims of the latter, with syrup and water, every third hour); astringent gargles, compound powder of chalk as demanded by the state of the bowels, and fifteen to twenty grains of the bromide of potassium at night. The average period of illness was twelve days.

In the 'severe' cases the same treatment was pursued, with the addition of the free application of the glycerine of carbolic or of tannic acid to the fauces, and of poultices to the neck. The average duration of illness was twenty days.

The 'malignant' cases were treated chiefly with diffusible and alcoholic stimulants; the average duration of illness was twenty-six hours.

The complications were almost exclusively anasarca, glandular inflammation and suppuration in the neck, and bronchitis. Anasarca was exhibited in a very large number of cases, chiefly those of a mild character, during convalescence. Consecutive abscesses in the neck were of very frequent occurrence, but in almost every instance the patients recovered. Bronchitis, which was occasionally at-

tended with interstitial congestion of the lungs, was developed in the course of the fever. Most of these cases terminated favourably, but pulmonary tuberculosis followed a few instances.

HUNT ON SCARLATINA.—In the *New York Medical Record*, June 19, Dr. Ezra Hunt writes as follows.

'While infection is the chief source of these zymotic diseases, we do not believe it necessary to assume either that it or contagion are the only sources. They have their laws of origin and propagation, and spread mostly by infection; yet the same conditions which finally occurred and produced cholera in India might occur and produce elsewhere. Given the same combination of conditions at New Orleans, it might originate there. Whether, as a matter of fact, it does, is a question to be settled only by aggregation of facts and difficult exclusion of all outside possibilities. The spontaneous generation of any given disease, or of any new disease, is quite a different question from the spontaneous generation of animal life. I know not why the combination called gunpowder did not get together long before, why lucifer matches waited for the present century, or why nitro-glycerine so long waited its union. Filth has its laws as well as other chemistries. It is quite possible that, while the zymotic diseases spread by infection mostly, once in a thousand times just that correlation of degenerations may occur, of which the result is this or that disease. A manufactory for making nitro-glycerine and giant-powder in this State had to import from Germany an infusorial earth needed. Some of the giant-powder contains 25 per cent. of it. In a swale or depression covered by a swamp of low bushes near the factory, some one found a whitish earth. Examination showed it to be the very article they were importing, entirely made up of the silicious skeletons of diatoms. I know as little how they got there as I know why some diseases which we get from abroad or from infection are found on the spot. We know no reason why the chemistry of decay and its combinations should not have as many originalities as the chemistry of life. Some day we will know more on these points, as we are getting hold of some great outlying and underlying truths. But we feel sure of some things about these zymotic diseases, and that some of the indications are plain. We want that each and all of us shall watch closely, and see how far, in addition to the principles of treatment set forth, we may get aid from proper surroundings. Bad sewage and sinks do not all the foul work. Bad kitchens, close basements full of the fungus of dampness, uncleansed corners up-stairs, dirty drawers and closets never scrubbed or aired, furniture never washed, soiled carpets used more than that of parlour, but not shaken as often, soiled beds and manifold neglects of good old-fashioned house-cleaning, now and then let a disease out of the Pandora-box, or make it rampant when it comes along. Doctors often fail, not because of a weak science or art, but because conditions of failure are all about them. There is much twaddle about the uncertainty of medicine, and the failure to find out remedies. There are scores of physicians in New York City so skilled in this and some other diseases, that it would be no vain boast to allege they could stamp out the disease as Hamilton did cholera on Blackwell's Island, if only they can command and execute.'

J. MILNER FOTHERGILL, M.D.

GROSSIN ON A CASE OF NODULAR ARTHRITIS CURED BY ARSENIC AND ARSENICAL BATHS.—M. Grossin (*L'Union Médicale*, July 8) reports a case of nodular arthritis, in which an affection of the knee of six months' duration was cured by arsenical baths, combined with the administration of arsenic internally, when all other treatment had entirely failed. Each bath contained one and a half grammes of arseniate of soda, with 100 grammes of carbonate of soda and 250 grammes of gelatine to the ordinary quantity of water, according to a formula recommended by Dr. Gueneau de Mussy. The bath was given at a temperature of from 90° to 98° Fahr., and continued for three-quarters of an hour to an hour. Internally, from two to ten drops of Fowler's solution were administered in the twenty-four hours. Fifty baths were given in the course of five months, at the end of which period the patient was able to walk about, and the knee has since remained perfectly well. The fingers of both hands, however, where the disease was of six years' longer standing, were not benefited by the treatment.

OBET ON THE TREATMENT OF SEA-SICKNESS BY CHLORAL.—Dr. L. C. Obet (*Archives de Médecine Navale*, June, 1875), after four years' constant experience in the treatment of sea-sickness, concludes that chloral-hydrate is the remedy which unquestionably gives the best results. Electrification, the hypodermic injection of morphia, and other means of more or less repute in this affection, afford but temporary relief. Bromide of potassium gives more satisfactory results than the rest; but the slowness of its action, the largeness of the doses, and the quantity of liquid in which it requires to be given, are great drawbacks to its administration.

The chloral is given the first day in a single dose of from one to two grammes. On the following days the same quantity is given again, either in a single dose as before, or in divided doses taken every hour.

Under this treatment, the patient becomes able even to join the dinner table in the course of two or three days.

With pregnant women also the result proved equally satisfactory, not a single case of miscarriage or premature labour having occurred.

The experiments of Carville, Oré, and Vulpian have shown that chloral, when given in sufficient doses, diminishes the general sensibility and the reflex action of the nervous system; that its effects are due to it as chloral and not to chloroform produced by the decomposition of chloral in the blood; and that the drug acts directly upon the elements of the spinal cord itself, and not through the medium of the vaso-motor nerves. If it be admitted that sea-sickness is chiefly dependent upon irritation of the medulla oblongata, the action of chloral in this affection is intelligible.

BONNEMAISON ON A CASE OF HYSTERIA IN A MALE.—Dr. Bonnemaison of Toulouse (*Archives Générales de Médecine*, Jan. 1875) relates a case of hysteria in a man aged seventy-two. The brother of the patient was a hypochondriac, and his mother, who died at the age of eighty-one, suffered from various forms of nervous disturbance, analogous to those of her hysterical son, after reaching her seventy-sixth year. The attacks in the case of Dr. Bonnemaison's patient came on three or four times in the twenty-four hours; ushered in, when occurring during the night, by nightmare; when in the day, by various sensations, and usually by pain in the

epigastric region. An aura proceeding from this point travelled along the sternum to the throat, and thence to the mouth and tongue, and other regions of the body, the muscles of the parts affected by this sensation being thrown into violent, rapid, and unaccountable convulsive action. The patient uttered strange cries and yells, or repeated the same word over and over again with extreme rapidity. At times the tongue would be smacked violently against the roof of the mouth, the cheeks spasmodically puffed out with the action of blowing or whistling, and the jaws snapped violently together, without, however, biting the tongue. The arms were moved rhythmically together with the action of flying, or drumming, or playing the piano. Sometimes the lower limbs shook violently, or executed the movements of dancing. The attacks bore a strong resemblance to those of the 'convulsionnaires' of St. Médard, or the rhythmic chorea of the epidemics of Louviers, Toulouse, and Morzic. The disturbance of the voluntary muscles might be accompanied by spasm of the involuntary muscles also, or the latter might form the chief phenomena of the paroxysm, consisting in hiccup, eructations, sighs, and borborygmi. During the whole of the attack the hyperæsthesia of the skin was excessive, especially at the forehead, epigastric region, and sternum; there was no loss of consciousness. The attack ended either with a copious flow of limpid urine, or a discharge of tears. There was never any pain or sensation referable to the generative organs, nor anything whatever in the history or the symptoms indicative of their implication in any way whatever. The same absence of any pathological condition of the organs of generation has been observed in cases of male hysteria observed by others. Grisolles, again, met with hysteria in a woman, in whom congenital absence of the uterus and part of the vagina was proved by *post mortem* examination. Children of six or seven years old are liable to hysteria. From these and other considerations, M. Bonnemaison concludes that pathological conditions of the uterus and ovaries are not the necessary cause and organic foundation of hysteria. He regards it as a neurosis, an expression of a nervous diathesis, having often an hereditary connection not only with hysteria, but with other neuroses such as epilepsy, idiocy, or hypochondriasis. The point of departure of the symptomatic explosion may be sometimes in one organ, sometimes in another; the uterus, the ovaries, the stomach, the intestines, functional disorder of different cerebro-spinal regions, etc. The predisposition may be developed by errors of education, luxury, excess or other surrounding conditions; but the constitutional foundation is always the same.

W. B. CHEADLE, M.D.

FABRE ON HYSTERIA IN MAN.—Dr. Paul Fabre (*Annales Médico-Psychologiques*, May, 1875) relates a case of hysteria occurring in a man, and quotes the opinions of various authors upon the question of hysteria in the male sex. With M. Briquet, he holds that an increased impressionability of the affective element in the nervous system is at the root of the predisposition to hysteria; that hysteria is confined almost entirely to the female sex because this affective element predominates there. Nevertheless, it may be found in males if there be the same predominance. The cause is not connected with the genital organs of the female, but is to be looked for in the sensitive nature of women. The passions and the

gloomy emotions alone predispose to hysteria. The man whose case is related was timid, credulous, and very impressionable. He was thirty years of age, pale, and debilitated. Both parents had died of phthisis, and he was the last of four children. His build and voice were somewhat feminine. He indulged in masturbation and drink, and was confined, as of weak mind with hallucinations and excitement. After being in the asylum a few days he had attacks of a convulsive character, lasting from ten to forty-five minutes, and returning every third or fourth day. Sometimes convulsive movements commenced in the lower limbs, and thence extended to all the rest. At others, the upper portion alone was convulsed, the abdomen and lower limbs remaining unmoved. Consciousness was partially or altogether lost. He described the attacks as commencing in various parts, the genital organs, the head, or stomach. For fear of bringing them on, he at one time refused food. He heard voices of the devil, his father, mother, or sister. He calmed down in about two months, the attacks left him, and he was able to give an account of himself. In his case all the common symptoms of hysteria were well seen; the partial loss of consciousness, clonic convulsions and spasms, sensations of globus, hyperæsthesia, and analgesia. There was also a constant spitting, which is frequently found. Without discussing the whole question of treatment, Dr. Fabre mentions a method of cutting short an attack by compressing the testicles. Two attacks in this patient were arrested, one by this method, and another by compression of the carotids. The latter plan operates, he believes, through the effect produced on the larynx; the former through the pain it causes. Bromide of potassium is useful, but it must be employed along with agents calculated to remove the cause of the malady. Here anæmia and disturbance of the digestive organs called for appropriate remedies.

G. FIELDING BLANDFORD, M.D.

BOURNEVILLE AND REGNARD ON A CASE OF HYSTERO-EPILEPSY WITH ANURIA.—At the meeting of the Paris Society of Biology on July 3, M. Bourneville communicated the particulars of a very remarkable case of this kind. It related to a woman aged forty-six, Justine Echeverry, who, having enjoyed good health up to twenty-three years of age, was then, in 1854, exposed to sudden fright. The following year she had an attack of hystero-epilepsy, fell into the fire, and burnt her face severely. In 1859, 1860, 1863, and 1865, she had similar crises. Having gone into the Sainte-Eugénie Hospital in 1865, she had cholera in 1866. After that time there was suppression of urine for a week; it re-appeared, but it was necessary to catheterise the patient daily until May, 1875. After having had several crises, she went into the Salpêtrière in 1869. There she had several hystero-epileptic attacks, followed by contractions in the upper and lower limbs, which contractions decreased at different times and were partially cured, recurred, and remained permanent in several parts. Abridging the history of the patient, we come to May 17, 1875. On that day at mid-day, she had an hystero-epileptic attack preceded by an aura (ovarian and anal pains with irradiations to the epigastrium, neck, and temples). The attack was accompanied by cries, deviation of the eyes, distortions of the face (which was of a violet tinge); the right arm was bent and remained fixed for three hours. On May 18 she presented the following

condition: contraction of the legs and arms, complete anæsthesia, double amblyopia, contraction of the jaw. The patient could no longer speak; there were neuralgic attacks, for which injections of morphine were administered. This condition lasted, without notable change, until May 22; on that day there was a fresh attack, and the singular part of the case is that at eight o'clock the patient was completely cured. Thus disappeared in a few minutes a retention of urine which had lasted since 1866; a contraction of the members of the left side dating from 1869; a contraction of the jaws necessitating alimentation, by the aid of a sound, during ten months, and aphonia of equal duration.

M. Charcot had in 1870 made the following prognosis. 'It is possible that, notwithstanding its lengthened duration, this contraction may vanish without leaving any traces, perhaps to-morrow, perhaps in some days, in a year; nothing can be pre-judged in this respect. But in any case, if there is a cure at all, it may be sudden. From one day to the other everything may become normal; and, if it so occur that at the time the hysterical diathesis is exhausted, she will regain her accustomed health' (*Leçons sur les Maladies du Système Nerveux*, first edition). This case should be collated with those collected by M. Bourneville, in his *Memoir on Hysterical Contraction*, published in 1872.

To the details of this case, M. Regnard added diagrams showing the amount of urine and the amount of urea excreted during the period of ischuria. He made 112 analyses under so much the more precise conditions, that, on the one hand, the patient was fed by the œsophageal sound with an unvarying amount of food; and that, on the other hand, catheterism was performed in consequence of the contraction of the neck of the bladder. During three months the patient voided daily fifteen or twenty grammes of urine, containing three or four decigrammes of urea. The details of M. Regnard's investigations are printed in the *Comptes Rendus* of the Société de Biologie. It will suffice here to state that the secretion of urine, which had been completely suppressed during many months, was suddenly re-established at the time when the other hysterical manifestations ceased.

BRIAND ON PERIPHERIC TRAUMATIC EPILEPSY. Dr. Briand relates, in the *Bulletin de la Société de Médecine d'Angers*, ann. lxxvii. p. 121, the case of a young man aged twenty, in whose family there was no history of epilepsy, nor of any kind of nervous disorder having any relation to epilepsy. The patient himself, until the occurrence of the injury, had never felt anything in the slightest degree resembling epilepsy. He had not contracted any venereal disorder, and did not show any symptoms which could give rise to suspicion of the existence of any cerebral affection.

At the battle of Mans in January, 1871, he was struck by two fragments of shell at the level of the nates. The marks left by these wounds prove that both the sciatic nerves were touched; there is likewise no possibility of doubting this since there was an attack of paraplegia with anæsthesia, which only disappeared at the end of a year. Eight months after receiving the wound this young man had an epileptic attack, and since that time has had several, returning at variable intervals, but always strongly marked.

HUTCHINSON ON THE USE OF THE OPHTHALMOSCOPE IN THE DIAGNOSIS OF CEREBRAL DISEASES.—Dr. Hutchison (*Philadelphia Medical Times*, May 8) discusses the distinction between the swelling of the discs dependent on mechanical obstruction to venous return, and that caused by descending optic neuritis. It is doubtful whether there is not, in all cases of so-called choked disc dependent on congestion, if of long standing, more or less optic neuritis. All therefore which can be truly said is, that the existence of an appearance of exudation in the swollen disc early in a case indicates optic neuritis rather than simple choking. The choked disc is, however, a condition of congestion, which may on the one hand be the result of descending neuritis, or on the other of intracranial pressure; and the inflammation which may be present, may be the consequence, not the cause of the choking. In the first case, the cause of the congestion is local, viz., pressure of inflammatory products upon the sheath of the nerve; in the second case it is seated within the brain, viz., pressure of a tumour or inflammatory products upon the sinuses. Dr. Hutchinson insists upon the value of ophthalmoscopic evidence in the diagnosis of cerebral affections, and in the detection of disease which would otherwise escape observation. Cases are given illustrating these points, in which the ophthalmoscope revealed optic changes indicative of cerebral mischief previously overlooked or unsuspected, or gave decisive confirmation to a diagnosis founded on general symptoms; or, on the other hand, almost proved the negative, by showing the fundus of the eye to be free from any marked changes. Statistics are also given, compiled from cases collected by Annuske and Reich, which show that optic neuritis is a constant and usually very early symptom of cerebral tumours. Of the cases in which an ophthalmoscopic examination was made, in 95.65 per cent. there was found optic neuritis or atrophy ex neuritide, and of these it was double in 93.5 per cent., single in 2.15 per cent. In 4.35 per cent. only of the whole number examined no ophthalmoscopic change was discovered.

W. B. CHEADLE, M.D.

LYMAN ON A CASE OF MYELITIS ENDING IN RECOVERY.—In the *Boston Medical and Surgical Journal*, May 20, Dr. G. H. Lyman, of Boston, relates the following case.

The patient, Mrs. E. S. S., aged twenty-five, was married at nineteen and had one child, now five years old; no other conception has occurred. Her parents are healthy. She had typhoid fever six years ago; she had been in good health since, though not as strong as before; her complexion was clear and healthy, her nutrition good.

On December 16 she had a severe attack of measles; the attendant cough was very urgent. The disease went through its usual stages without any other complication than the unusual severity of the cough, which remained troublesome. The bowels were constipated. There was slight febrile disturbance, and some pain on pressure over the lumbar vertebrae; there was no muscular twitching; the urine was normal. The patient reported that a week ago (January 1) she found on awaking in the morning that there was numbness of both feet, with pricking sensations as though the 'legs were asleep,' though she could stand, and even walk with difficulty. In five or six days the numbness gradually extended to the hips, with manifest increase of loss in muscular power. Hot and cold applications to the spine

caused no pain. She was unable to distinguish any difference between a piece of ice and hot water.

January 12. In attempting to walk across the room the right leg was found to be completely paralysed, the left nearly so; loss of sensation was nearly complete below the hips, and there was some numbness on the right side of the chest.

January 16. There was slight relaxation of the vesical sphincter.

January 19. Both legs were completely paralysed, the right more so than the left. If rubbed, forcibly extended, or placed in an uncomfortable position, they became rigid and painful, and spasmodic action was induced, more in the right than in the left. During the past week the spine, below the shoulder-blades, had been sufficiently painful to awaken her at night. The past two days the patient had had a decided feeling of stricture about the waist, as though laced too tight. The ominous affection of the vesical sphincter had disappeared. The patient was now unable to stand or walk, and was obliged to be lifted; with much effort she could turn over in bed, and when at rest suffered no pain. She had slight headache occasionally, which she attributed to the medicine. The cough had nearly gone; the appetite was good; the bowels required a daily laxative. There was no affection of the special senses. The catamenia were regular. Electricity caused imperfect muscular reaction in both extremities, most in the left.

When she was first seen, on January 8, a laxative pill of quinine, sulphate of iron, colchicum, and aloes was ordered. As the paralysis was not complete, and in the hope that it might be simple congestion of the cord, six leeches were applied to the lumbar region. There being no improvement, but a decided increase of the disease, this was followed in a day or two by ergot and bromide of potassium, a drachm of the former and half a drachm of the latter, three times daily, with good diet, and enough morphia and camphor to insure quiet nights.

January 27. In addition to the above, one-thirtieth of a grain of strychnia, with fifteen drops of dilute phosphoric acid, was given twice daily, alternating with the ergot, one dose of the latter being omitted. She was also given lager beer and a still more generous diet.

January 30. There was some return of sensation, and ability to flex the foot upon the ankle.

Two weeks later (middle of February) the patient was able to rise slowly from her chair without assistance. The ergot and bromide were continued three times daily, the strychnia being omitted. Iodine was applied daily to the lumbar region. Slow but steady improvement continued until March 20, when the patient was able to walk up and down stairs.

April 1. The patient had recovered entirely both sensation and motion, with no more weakness than would naturally result from her long confinement. The ergot had been gradually reduced during the past fortnight and cod-liver oil substituted.

April 3. The ergot was omitted entirely; the oil was continued for a short time.

As recovery from myelitis is rare, it may perhaps be suggested that this was a case of reflex or neurolytic paralysis; but the completeness of the paralysis, the slight pain in the spine caused by pressure on the processes, the stricture about the waist, the pricking sensations, the anæsthesia so complete, and the total absence of gastric or urinary derangements, all point to inflammation of the substance of the cord, which

fortunately had not progressed so far as to prove intractable to remedies.

ERB ON AN IMPERFECTLY RECOGNISED COMBINATION OF SPINAL SYMPTOMS.—Dr. Erb, of Heidelberg (*Berliner Klinische Wochenschrift*, June 28, 1875), has met with about a dozen cases of affection of the spinal cord, in which he considers that the symptoms were sufficiently distinct and well marked to justify their separation from other forms of spinal paralysis, such as myelitis, ataxy, tabes dorsalis, etc. The clinical evidence of distinctness, he adds, is clear, constant, and well marked, although as yet it is not confirmed by *post mortem* examination. The cases described by Dr. Erb exhibit a malady slow in progress, not tending to death, but an essentially chronic form of disease, extremely gradual in its development. It seldom begins with abnormal sensation, but almost always commences with impairment of the motor functions, especially by the lower limbs, as shown in the uncertainty of gait and tendency to falling. Frequently at the outset spasmodic action and cramps of single groups of muscles are observed. The disease being progressive, the patient after months or years presents a peculiar appearance from the strangeness of his gait, and later still becomes more or less paralysed and unable to stand or walk. The staggering gait reminds one of ataxy, but closer observation detects the difference. The patient drags the limbs after him, his feet appear to adhere to the ground, the toes catch upon every unevenness of the ground, and are dragged along with a shuffling noise. Every step is performed by a distinct heaving effort of the body, which acquires a tendency to fall forward. This is caused by contraction of the muscles of the calves, by which the toes are bent downwards. The knees are bent forward, as also the whole body inclines forwards. In the recumbent posture, movements of the body are at first not much impeded, but at a later period become difficult and painful. Standing is possible, either on one foot, or with the feet close together. Closing the eyes does not cause giddiness or staggering. Muscular contractions ultimately cause fixed positions of the limbs. The muscles continue to be well nourished, and retain their normal electro-excitabilities. It frequently occurs that the muscles of the trunk become feeble, so that it is with difficulty that the erect posture can be maintained. The upper extremities seldom become affected. There is seldom any impairment of the sensibility or of the muscular sense. In only one case was slight cutaneous hyperæsthesia. A very marked reflex susceptibility is observed in many of the tendons, *e.g.* the ligamentum patellæ, the tendo-Achillis, the adductors, the biceps femoris, the tibialis anticus and posticus. This reflex property of tendons, the author states that he has formerly described, in conjunction with Professor Westphal. The vaso-motor functions are not interrupted, except that in a few cases there is coldness and blueness of the extremities. The cerebral functions are also unimpaired. The general health is but slightly interfered with. The progress of most of these cases has been a gradually increasing loss of power in the lower limbs, until the patient has become bedridden.

These cases are compared differentially with other forms of spinal disease by Dr. Erb, who, failing an opportunity of *post mortem* examination, finds it very difficult to localise the affection. The pathological condition which the author regards as nearest to that

under consideration, is that of sclerosis of the lateral columns of the spinal cord, as described by Charcot. Their prognosis is not unfavourable, indeed the author has seen several cases that have been greatly benefited by galvanism.

[May not these cases be regarded as instances of chronic myelitis?—*Rep.*]

W. B. KESTIVEN, M.D.

RECENT PAPERS.

Scarlatina Anasarca and its Treatment. By Dr. Bramwell. (*Edinburgh Medical Journal*, July, 1875.)

Note on Hysteria. By Dr. Verstraeten. (*Annales de la Société de Médecine de Gand*, June, 1875.)

Clinical Studies on Whooping-Cough. By Dr. Noël Gue-
neau de Mussy. (*L'Union Médicale*, July 10.)

On some Points of the Diagnosis of Scleroses of the Nerve-
Centres. By Dr. H. Mollière. (*Lyon Médical*, July 11.)

SURGERY.

SCHWENINGER ON ENCHONDROMA.—Dr. Ernst Schwenger, of Munich, publishes in the *Aerztliches Intelligenzblatt*, no. 24, 1875, an interesting case of enchondroma that was treated by Professor Nussbaum. A young woman, aged seventeen years, applied with a very large and firm tumour of the left tibia, which had commenced two years before, shortly after a fall. It appeared first as a small outgrowth from the bone about four inches below the knee, and increased slowly in size until three weeks before the patient came under notice, when, immediately after a second fall at that time, it began to spread very rapidly, and involved almost the whole of the leg. Amputation at the lower third of the thigh was performed on the day after admission, and the tumour on subsequent examination was found to be a good specimen of enchondroma. The case did not progress well after the removal of the limb; the flaps sloughed, the granulating surfaces at the extremity of the stump afterwards became diphtheritic, and suppuration was profuse. At the end of six months, when the stump had almost quite closed, the general health commenced to fail, and the patient gradually sank in consequence of severe pains in the lower limbs, and of an exhausting discharge from a large bed-sore. Death took place thirteen months after the amputation, from general exhaustion. On *post mortem* examination the lungs were found to be studded with small secondary enchondromatous growths, and in front of the lumbar vertebræ was a large nodulated tumour which passed downwards and occupied a greater part of the pelvic cavity. A portion of the walls of the vena cava, in contact with this tumour, had been removed, and soft masses of enchondroma were found projecting into the interior of this vessel. The pulmonary tumours, like the primary growth of the tibia that had been removed by amputation, presented on microscopical examination, well-marked cartilage-cells, a few bone-corpuscles surrounded by fibrillated and vascular connective tissue, and at the periphery of each tumour and constituent nodule, a profusion of small embryonic cells resembling white blood-corpuscles—the so-called indifferent cells. Besides these indifferent cells and the well-developed cartilage and bone-cells, were found a number of cells presenting transitional forms. The basis-substance in both the primary and secondary growths was hyaline at some parts, mucous at other parts, and

here and there much fibrillated. The primary tumour and most of the internal growths presented patches of calcification and fatty degeneration. Dr. Schwenger, in commenting on the case, points out the undoubted traumatic origin of enchondroma in this instance, and dwells specially on the position and minute structure of the secondary growths as indications of the course and manner of infection, and of the pathogenesis of such tumours. The large pelvic tumour was, he holds, due in all probability to infection through the lymphatics, whilst the smaller growths in the lungs were doubtless formed from small masses carried by the blood from the eroded portion of the vena cava. The malignancy of enchondroma and its frequent appearance in the metastatic form are to be explained by the soft, loose, and vascular structure of the mature growth, and by its tendency to undergo fatty degeneration. The growth and further development of the secondary tumours take place, according to the author, through proliferation of the original specific elements—cartilage cells, and through the gradual transformation of embryonic or indifferent cells into the cells of cartilage, bone, and connective tissue. Investigation of the processes of calcification and ossification in enchondroma, together with observations of normal cartilage, have led Dr. Schwenger to the conclusion that the developed cartilage-cells and the intercellular substance never ossify, but only undergo calcification; whilst the process of ossification, in enchondroma at least, is always carried on by the embryonic cells.

W. JOHNSON SMITH.

MARCEZ ON A CASE OF PAPILLARY GLOSSITIS.—M. Marcez reports the following case in the *Gazette des Hôpitaux* of June 29, 1875.

The patient was a married lady, aged forty-five. She had no children, had never miscarried, her menstruation had always been regular, and she had no specific antecedents, either acquired or hereditary. She was, however, of an extremely nervous temperament—so much so that for some time previously a very slight degree of excitement disturbed her appetite and her sleep for days, and had even on two occasions caused a severe attack of jaundice. Another peculiarity in her case was the extreme sensitiveness of her skin. The slightest cold air gave rise to a furfuraceous desquamation of the face, particularly on the forehead and lips. And a sea-bath was sufficient to cause erythematous patches all over the surface of the body.

In July, 1871, Madame X., when under the influence of very violent emotion, was attacked, as on former occasions, with gastric disturbance, characterised by abdominal pains, abundant evacuations, complete loss of appetite, great thirst, and slight feverishness. A homœopathic practitioner, who was consulted, ordered calomel—fifty centigrammes (seven and a-half grains) night and morning. The patient was not seen for forty-eight hours, by which time she had taken more than thirty-eight grains. Her symptoms at this time were much aggravated; and her tongue was so much swollen that it protruded beyond the dental arch, filling the mouth, causing a feeling of suffocation, and preventing both speech and deglutition. The symptoms did not entirely disappear for six weeks, and for some time the patient's life was in danger. Rather more than a year later she had a similar attack. The treatment on this occasion was

chiefly by soothing drinks, and the symptoms rapidly disappeared, leaving, however, a feeling of heat and discomfort at the tip of the tongue, which nothing seemed able to remove. The tongue appeared in all respects normal, except that the tip was very red, and here and there on its surface were little red dots. In these places the papillæ were distinct, hardened and hypertrophied. When examined with a lens, it was found to be the fungiform papillæ which were thus affected. With the finger, the difference between the healthy and the unhealthy portion could easily be distinguished. The papillæ appeared as if distended and ready to burst; and were each about the size and shape of a pomegranate seed. The patient complained, not so much of pain, as of a constant uneasiness, which was increased by almost every kind of food. Various lines of treatment were tried, but although after eighteen months the patient's condition was certainly improved, yet the cure was far from being complete. She is subject to frequent relapses, and although there are occasional periods of almost complete relief, yet the papillæ have never returned to their normal state. It is not possible to trace these recurring attacks to any distinct cause. The subsidence of the symptoms seems generally to coincide with the use of very slight cauterisation, repeated at short intervals. Emollient applications appear to have no effect, whilst astringents, such as alum, borax, and chlorate of potash, do more harm than good.

This case has been reported because of the limitation of the inflammation to the papillæ, because of its apparent origin in a nervous shock, and also because of its obstinately chronic nature, as well as the impossibility of obtaining a cure by any medical or hygienic treatment.

FÉRÉOL AND OTHERS ON BLACK PIGMENTATION OF THE TONGUE.—In the *Gazette des Hôpitaux* for June 29, 1875, attention is drawn to this subject. Four cases of this affection have been already recorded by M. Maurice Raynaud, a fifth by M. Gubler, and to this a sixth has now been added by M. Féréol. M. Raynaud termed the disease in question a parasitical affection of the lingual mucous membrane, and believed it to be due to the presence of the spores of the 'trichophyton tonsurans.' But in the six cases which are now on record the parasite was only discovered in one. It would appear, therefore, that there is a contradiction between M. Raynaud's facts and his deductions. M. Féréol gives the affection the name of 'piliform epithelial hypertrophy.'

W. FAIRLIE CLARKE.

HENSCHEN ON A CASE OF RECOVERY AFTER COMPLETE DIVISION OF THE LARYNX AND ŒSOPHAGUS.—S. Henschén reports the following remarkable case in the *Upsala Läkareforenings Förhandlingar*, Band x. (abstract in *Nordiskt Medicinskt Arkiv*, Band vii.)

A peasant, aged forty-three, attempted suicide by cutting his throat with a knife, and then with a razor. On the front of the neck was a transverse gaping wound about four-and-a-half inches long, the ends of which passed through the skin and subcutaneous tissue, laying bare the sterno-cleido-mastoid muscles. In the centre it exposed the prevertebral fascia, which was cut. The incision had thus divided the trachea and Œsophagus, and the recurrent nerves.

The cricoid cartilage was divided just below the vocal cords; the upper part of the cartilage was

drawn upwards with the larynx, while the lower was drawn down with the trachea. Around the upper end of the trachea the surrounding tissues had swollen and pressed on the opening, which was also partly covered by a piece of the wounded thyroid cartilage; respiration was considerably impeded. Behind the trachea, though with difficulty, the end of the divided Œsophagus was seen. This had been so much drawn down towards the thorax that it was only with great difficulty, and after a search of two hours, that Dr. Landgren was able to find it at the bottom of the wound, and to prevent its further retraction by passing some suture threads through it.

At the sides of the Œsophagus the carotid arteries in their sheaths were seen quite unhurt. The bottom of the wound was formed by the prevertebral aponeurosis, which was wounded at one part, so that a probe introduced into the opening passed back to the vertebrae. At the upper part the wound was limited by the upper part of the Œsophagus, or perhaps more correctly the pharynx and larynx, in a state of œdematous swelling: the inferior vocal cords lay exposed.

The space between the upper and lower ends of the Œsophagus was so great that a closed hand could reach the bottom of the wound when the patient lay with his head bent backwards.

From the pharynx and larynx there constantly escaped quantities of saliva and buccal secretion, which, mixed with the discharge from the wound, threatened to block up the trachea, as the patient could not swallow nor free his mouth by coughing.

The first question naturally was, how to feed the patient, and at the same time make the breathing less difficult. By means of an œsophageal tube he was given abundance of milk, raw eggs, wine and water, and afterwards infusion of meat, prepared with hydrochloric acid at a temperature of 113° to 116° Fahr. He bore the food very well.

In order to prevent the discharge from the wound and the saliva from running down the trachea, and to favour its escape, the patient was laid on his side, and was kept clean by the assiduous use of sponges and charpie. The flap of thyroid cartilage lying over the opening of the trachea had to be cut away. The patient's condition was tolerably good, and there was no general reaction.

An attempt was made to unite the two ends of the Œsophagus by sutures. But as these could not be brought accurately together by simple traction, it was found necessary to separate them from the surrounding parts both above and below. At the lower part, this was done easily enough, partly with the edge and partly with the handle of the scalpel, but above some dissection was necessary. Four sutures were now introduced into the Œsophagus, two behind and two in front, and an œsophageal tube was introduced for the purpose of being retained. By means of traction and placing the patient's head in a favourable position, the two ends of the Œsophagus could be approximated to within about half an inch, at which point the sutures were tied.

It was found impossible to invaginate the upper portion of the Œsophagus into the lower one. The patient retained the Œsophagus tube without difficulty; for some days a solution of bromide of potassium was applied to the throat.

It seemed impossible even to attempt to unite the trachea, as the larynx (in consequence of the division of the recurrent nerves) was partly paralysed, and with each act of deglutition the whole of the

buccal secretion was carried down through the larynx, so that the closing of the trachea was incompatible with the employment of the necessary means for cleansing the tube.

By means of abundant granulation, the wound soon assumed the form of a funnel, the lower part of which was formed by the trachea, where all the secretion was collected. It was difficult to prevent this from closing the tube, but fortunately the patient learned, with the help of a hand-mirror, to dress his wound.

During the next two weeks the patient's condition was less satisfactory than before. He had slight fever, lost his appetite, and an erysipelatous redness appeared around the edges of the wound. Afterwards, however, his strength increased under the use of nutritious food, quinine, etc., and in a month he was able to return home. In the anterior part of the œsophagus there was still a small opening of the size of a small goose-quill. Around the trachea induration had taken place, which kept the aperture open, even when a trachea-tube was not used; the wound had become filled with granulations; supuration had nearly ceased, and the edges of the wound had united.

After he had been at home two months, the patient was obliged to remove the œsophagus tube, which had become plugged with remains of meat, etc., and he found that without much difficulty he could swallow small pieces of bread, etc. Drink, however, escaped from the fistulous opening in the œsophagus through the trachea; the patient, therefore, of his own accord, plugged the opening with charpie, which naturally prevented the healing of the fistula. After five months the patient was admitted into the Seraphim Hospital, to have a stricture of the œsophagus dilated. His general health had been continuously good, but he was of course deprived of the power of speech.

STAGI ON A CASE OF COMPLETE DIVISION OF THE TRACHEA: RECOVERY.—In a letter to Professor Corradi, published in *Lo Sperimentale* for June, Dr. Luigi Stagi relates the following case.

On the evening of June 6, 1874, he was hastily called to see a case of cut-throat. He found, lying in a bed, covered with blood, a young man, aged about twenty-four, of ordinary height, nervo-sanguineous temperament, and with a scanty development of fat. On examining his neck, he found a transverse wound, nearly two inches long, from which escaped blood and bubbles of air. The instrument, a razor, had penetrated between the first and second rings of the trachea, and the edges of the wound were nearly an inch apart. The upper part of the trachea was drawn upwards, and the remaining portion was retracted and almost hidden among the neighbouring parts; the breathing was difficult and noisy; there was complete aphonia. The mouth and nostrils were open; but respiration was performed solely through the wound. No vessel of importance was injured.

Frequent paroxysms of cough expelled a quantity of blood which threatened to pass down the trachea. To avoid this, Dr. Stagi turned the patient on his face, while an assistant bent the head backwards so as to keep the wound open. In this manner, the blood, obeying the laws of gravitation, escaped through the wound. Cold applications being made

to the wound in such a way as not to interfere with respiration, the hæmorrhage ceased. Dr. Stagi then left the patient to see a woman who had also cut her throat. On his return, an hour and a-half later, he found that there had been a constant flow of blood, not so copious as before, but enough to prevent an apparatus from being yet applied. He then again left, ordering the patient to be kept in the same position. About six hours later he was summoned by the judicial authorities to assist in the ordinary legal formalities. The patient was in a very bad state, constantly troubled with attempts to cough. He could only answer questions by moving his head. Dr. Stagi did not try to bring the edges of the wound together, so as to render speaking possible; first, because it was known that the man had attempted suicide, and secondly, because he feared that the proceeding would cause distress to the patient. The next morning the hæmorrhage had ceased, and respiration was carried on freely through the wound. The position of the patient was then changed, and his head was bent down towards the chest, and retained there for eighteen days. The parts had scarcely been brought together when the patient, in a weak voice, explained to the bystanders the reason of his attempted suicide. On the twelfth day the trachea was perfectly reunited; a little pus escaped from the wound in the integuments. He was then taken to the hospital, in order that he might be more conveniently watched, and was discharged on July 8, perfectly cured, except that his voice was rather hoarse. The only trace of the wound was a linear cicatrix.

A. HENRY, M.D.

DUPLAY ON AN OSTEOPLASTIC METHOD OF OPERATION FOR HARE-LIP.—In cases where the nose is much flattened, and the two moieties of the dental arch are not on the same level, M. Duplay (*L'Union Médicale*, February 13, 1875) has invented the following method of proceeding.

In order to raise the nose he divides with the scissors the cartilaginous part of the septum, after having prepared the borders of the fissure in the lip (for which purpose he employs Clémot's method of leaving the flaps attached and reversing them), and after having also rapidly divided the mucous membrane of the alveolar process and every adhesion which may exist. It is now easy to raise the nose as far as may be necessary, so that the lobule is placed in the median line, and the flattening is quite corrected. Then if the hare-lip be simple, the operation is finished by attaching the parts together, by means of the twisted suture. If there be besides a fissure of the palate and of the dental arch, he corrects the difference in level between the two parts of the latter, before sewing up the flaps of the lip, in the following manner. He detaches from the free extremities of the projecting half of the jaw a tubercle of bone, which he leaves adherent by its posterior part, and which he turns on itself and attaches by suture to the free end of the other half, refreshed for the purpose, so as to produce a median tubercle something like that which exists in double hare-lip.

TILLAUX ON GRAFTING OF THE EXTENSOR TENDONS OF THE HANDS; ANASTOMOSIS OF THE TENDONS.—A very interesting case is shortly detailed in *L'Union Médicale*, February 13, 1875, under the care of M. Tillaux, in which a man had received a wound on the back of his hand, by which the two extensor tendons, belonging to the fourth and fifth

fingers had been divided, and those fingers had lost all extensor power and were permanently flexed. The blood having been excluded by Esmarch's bandage, two flaps were turned back, so as to expose the peripheral ends of the divided tendons, and these were then implanted or grafted into the uninjured tendon of the middle finger. This was done by making a sort of button-hole in the tendon (or in its sheath?) into which the two divided tendons were implanted by means of several points of metal suture. The operation was performed without anæsthetics, and the tendons (which were completely free from any trace of inflammation) presented evidences of lively sensibility.

The wound cicatrised kindly, and the man recovered the motion of both fingers.

The only case which the relater of this case (Dr. Gillette) could refer to as analogous is one mentioned by Velpeau (*Méd. Opér.*, ii. 507) in which a surgeon named Milla had united a divided tendon to the edge of a sound one, but without actually grafting it. Several successful cases of suture of divided tendons are referred to.

T. HOLMES.

RICORDI ON A CASE OF RESECTION OF TWO-THIRDS OF THE RIGHT HUMERUS: COMPLETE REPRODUCTION OF THE BONE.—Dr. Ricordi relates the following case in the *Bulletino delle Scienze Mediche di Bologna* for May, 1875.

A boy, aged twelve, presenting some amount of rickety deformity, was admitted into the hospital at Milan with fracture of the arm, in consequence of a fall from a tree. The external part of the elbow had come into contact with the ground; and a portion of bone protruded from the fracture, which was reduced by the district surgeon.

On removing the dressings, Dr. Ricordi found a fracture of the humerus a little above the condyles, and a lacerated wound about two inches long at the outer side of the lower part of the arm, from which a little blood escaped. On making the upper end of the bone project, it was seen that there was a V-shaped fracture, and that there was a longitudinal fissure about 1·2 inch long in the bone, which was extensively denuded of periosteum. By drawing the forearm towards the chest and raising it, Dr. Ricordi exposed the bone more completely, and, on enlarging the wound upwards, he found that the periosteum was stripped off for a space of four inches. He decided on removing the denuded bone; and with a chain-saw divided it about two inches from the head of the humerus, and trimmed the lower end of the bone with bone-forceps. The portion removed from the upper part measured four inches; that from the lower about 0·4 inch. Three points of suture were applied to the wound; the arm was encased in a cardboard splint with an opening opposite the wound, and the forearm was placed in a sling. There was but slight reaction, and the cure was complete on the fortieth day. During this period the bone was completely reproduced, without any shortening.

This case is remarkable on account of the extensive separation of the periosteum. The boy struck the ground with the outer side of the elbow, and the humerus was broken at the lower third; the force of the fall then being continued, the upper fragment of bone burst through the soft parts and protruded. The effect of the fall, however, was not arrested here; the periosteum, adhering more to the neighbouring parts than to the bone, was separated for

some distance. And the case is interesting on account of the amount of bone removed, and of the rapidity with which recovery took place. This, however, does not cause surprise when we consider that the periosteum only suffered a longitudinal fissure, preserving its vascularity, and retaining its adhesion to the neighbouring parts, thus presenting the most favourable conditions for rapid and regular formation of new bone.

A. HENRY, M.D.

RECENT PAPERS.

Retention of Urine: Capillary Puncture of the Bladder, followed by Aspiration, by means of Dieulafoy's Apparatus. By Dr. Van Brabant. (*Annales de la Société de Médecine de Gand*, June, 1875.)

Note on a Case of Removal of a Cancerous Breast by a mixed Method of the Cutting Instrument and the Lineal Écraseur. By Drs. A. Van Netter and V. Deneffe. (*Ibid.*)

Telangiectatic Sarcoma of the Scalp, complicated with Cirsoid Aneurism: Operation: Cure. By Dr. Horteloup. (*La France Médicale*, July 10.)

MATERIA MEDICA AND THERAPEUTICS.

HOLMES ON BRAZILIAN DRUGS.—The following are extracts from an article by Mr. E. M. Holmes, Curator of the Museum of the Pharmaceutical Society, published in the *Pharmaceutical Journal* for June 12, 1875.

Erva do Rato.—The leaves and fruit, in the state of powder, are used in Brazil to poison rats and mice. Dr. Barnsley attributes the drug to *Palicourea Maragravii*, St. Hil. He states that it is a most deadly poison, and that a great number of mules and sheep are annually killed by eating it, death following in five to eight hours after ingestion. According to Martius, both this species and *P. nicotianaefolia* are powerful poisons, but the latter in small doses is used in veterinary practice for dysuria in horses and mules, while two other species, *P. officinalis*, Mart., and *P. densiflora*, Mart., possess diuretic properties, and are used in syphilis, rheumatism, etc. He states that their action resembles that of digitalis in its effect upon the heart. There can be no doubt that the plants of this genus possess powerful properties, and are certainly worthy of scientific investigation.

Fruita de Gentio.—This drug consists of small baccate fruits of a yellowish colour, about the size of a filbert, and containing from four to six flat seeds immersed in dried pulp. Each seed is about half-an-inch in diameter, and one-eighth of an inch in thickness; the seed is notched at the base, with the micropyle forming a little projection in the notch; the nucleus is oval, and occupies only a small portion in the centre of the seed; the circumference of the seed, to the depth of one-eighth of an inch, consists of a hollow raised rim, so that the portion of the seed containing the nucleus is oval and depressed. The nucleus is exalbuminous, and consists of two flat, oily cotyledons, with the radicle near the hilum. The cotyledons are tasteless, but the pulp in which the seeds are immersed is extremely bitter. According to Dr. Barnsley, the fruit and seeds are used in the form of powder and tincture as a drastic purge, and are a favourite remedy with the lower class of

Brazilians. He does not know the plant yielding the drug, but the characters above described show that the seeds probably belong to the Cucurbitaceæ.

Japicanga.—This is the rootstock or 'chump' of some species of sarsaparilla. It has but a small portion of rootlets attached; these have a hard woody medullium, a thin dark-brown cortical portion, and are smooth externally. It has no distinct taste. According to Dr. Barnsley it is used in the province of Rio as a substitute for the sarsaparilla of the Amazons. He refers the drug to *Smilax glauca*, Mart. The name Japicanga, which is variously spelt Japecanga, Jupicanga, Inhapecanga, is a generic term for any kind of sarsaparilla in Brazil.

Jarrinha.—This drug occurs in slices about half-an-inch thick, and two inches in diameter; the medullium is about one inch in diameter, and has a radiate appearance owing to the presence of a number of very narrow yellowish woody wedges which have thick white medullary rays between them, and the woody wedges when examined with a lens are seen to be full of large porous vessels. Outside of the medullium is a horny portion a quarter-of-an-inch in thickness, and outside this layer is a soft corky layer of the same thickness. It has the peculiar camphoraceous odour common to several nearly allied species of *Aristolochia*. The taste is slightly acrid, but not bitter. It is certainly the root of a species of *Aristolochia* and is attributed by Dr. Barnsley to *A. cymbifera*, Gom. (Mart.?) He states that the root is very useful for colicky pains, and that it is used as a tonic, and for gangrene. By the natives it is esteemed a sure remedy for snake-bites. It is very abundant in every part of Rio and S. Paulo. Several species of *Aristolochia* are used under the name of Sipo de Jarrinha or de Mil-Homens. According to Martius they are used for the same complaints for which valerian is used in this country, and are considered superior to *Aristolochia serpentaria*.

Pipi.—This drug is a long-branched woody root, about eighteen inches long, half-an-inch in thickness in the upper part, and tapering downwards to one-eighth of an inch. The root is pale brown and smooth externally; a transverse section shows a large white woody medullium, filled with minute pores, but with the medullary rays indistinct, the cortical portion very thin, of a brown colour, and readily scaling off when the root is bent. The taste is slightly bitter, and causes a sensation of tingling when chewed. Dr. Barnsley states that a tincture of the root forms an admirable remedy for chronic rheumatism, lumbago, and muscular paralysis, and that it is much used in the province of Rio by country physicians. Martius refers the plant yielding the root to *Petiveria tetrandra*, Gom. The leaf which accompanied the root is, however, not that of *Petiveria tetrandra*, Gom., but that of some twining plant with opposite leaves—probably belonging to the Malpighiaceæ.

Quina quassia.—This drug is a bark of a greyish colour externally, with a number of short pale brown transverse scars. The epidermis is very thin, and can be readily scratched off by the finger nail, leaving the white portion underneath exposed. The bark is fibrous, but is nevertheless very tough, and breaks with a rather short fracture. When cut transversely with a sharp knife the layer just inside the epidermis (mesophloeum) is seen to be irregular

in outline and much whiter than the inner portion. The taste is intensely bitter. Dr. Barnsley does not know to what order the plant yielding it belongs; but, he having sent a portion of the plant with the barks, I have been enabled (with Professor Oliver's kind assistance) to identify it as the *Picrasma Velosii*, Pl., of the natural order Simarubaceæ. With regard to this bark, which is not mentioned by Martius, Dr. Barnsley states that it is used in dyspepsia and in intermittent fevers, and that he has employed it in the latter with decided success. With the bark he sends a portion of white crystalline powder, which he says was given to him by a native forester and gold miner of the woods of S. Paulo, who was well acquainted with the medicinal herbs of that district, and who stated that he obtained it from this bark. This crystalline powder has been examined by Mr. S. Plowman, who finds it to be chiefly sulphate of quinine with a little hydrochloride. The barks of the Simarubaceæ are not known to yield quinine, hence it is probable that Dr. Barnsley has been imposed upon.

Saponacea.—This is a kind of soap berry, the fruit of a species of *Sapindus*, possibly of *S. divaricatus*, Willd., to which Guibourt refers the soap berries he received from Brazil (*Histoire des Drogues*, 6th edition) and which is the only species mentioned by Martius. Dr. Barnsley states that he has made an excellent tooth-wash from them, and suggests that, perhaps, some species of this berry is used in making the London 'Floriline.'

Tayuyá.—This is a long slender root varying in size from a quarter to one-third of an inch, scarcely branched, brown externally, internally of a paler brown, and full of large pores, which are easily visible to the unaided eye. The cortical layer is not very distinct. The taste is bitter. Dr. Barnsley refers this root to *Trianosperma Tayuyá*, Mart., but Martius describes the root of that plant as being tuberous and turnip-shaped. The leaf sent with the root is apparently that of a *Trianosperma*; but as there are no tuberous roots with the *Tayuyá* received, it is probably the root of another plant of the same genus. An infusion, tincture, or extract of the root is used as a drastic purge. It has properties analogous to *Elaterium*. In the province of Rio it is a common plant.

Timbo.—This drug consists of a very large woody root or prostrate stem, three or four inches in diameter, and much branched. Externally it has a dirty-white colour, with numerous warts scattered over it, and is of a rough aspect, owing to depressions, scars, and a few transverse ridges; the smaller portions are, however, only wrinkled longitudinally. The central portion or medullium of the root is yellowish white, with a number of fine horny concentric rings; the bark of the root is distinct, thick, and starchy, and of the same colour as the medullium. The taste is not bitter. When chewed the root causes only a slight but persistent tingling of the tongue. According to Martius it is the root of *Paullinia pinnata*, L., and possesses acrid and narcotic properties, acting especially on the kidneys and brain; he compares it to aconite and states that the negroes prepare a slow poison from it. Dr. Barnsley is inclined to think that the above-named plant does not produce it, but that it is the root of *Physalis heterophylla*, Nels. The leaves accompanying the specimen being imperfect it is impossible to say what the plant is, but the leaves are more like those of a Sapindaceous than of a Solanaceous plant. It seems

to possess powerful poisonous properties, which may perhaps be worthy of investigation.

Velame or *Braço de Preguiça*.—This is the root of *Solanum jubatum*, Dunal. Through an oversight its description was not given under *Braço de Preguiça*. The root is in somewhat flexuose pieces, externally resembling belladonna root in colour, varying from half to one inch in thickness. Internally the root is woody, the medullium being of a pale yellowish colour, with very numerous medullary rays, which are not visible to the naked eye, but are readily seen with the aid of a lens. The cortical portion is very thin and seems to consist of several extremely thin layers; the outer layer when scraped with the nail or with a penknife shows that the under layers are of a pale lilac grey colour and chalky appearance. This character does not occur in any other root with which I am acquainted, and at once distinguishes this drug. It appears to be almost tasteless. Martius does not mention either *Velamé* or *Panacea* in connection with *Solanum jubatum*, Dunal.

EVERS ON INDIAN MEDICINAL PLANTS (*Continued from page 255*).—Surgeon B. Evers continues, in the *Indian Medical Gazette* of June 1, his notes on Indian medicinal plants as follows.

Thenetia Bark.—Bark of the *Thenetia neriifolia* (N. O. Apocynaceæ). A plant of the West Indies, but now seen in almost every garden in India. It is commonly known as the 'exile' or yellow oleander. The antiperiodic properties of this plant were first noticed, it is said, by M. Descourtilz. Drs. Bidie and Shortt's experiments with the drug are confirmatory of that writer's observations. I have made trial both of the tincture and the powder of the bark, and can bear testimony to the value of the drug as a febrifuge. One hundred and twenty-one cases of ague were treated with the tincture, and twenty-one with the powder (in doses of a half to one grain three times a day), and in all the results were most satisfactory. The most obstinate cases have yielded to the drug in from five to eight days; with many of these patients quinine had been previously tried in vain. Administered in the hot stage of an ague-fit, the drug rapidly reduces the force and frequency of the pulse, and appears to hasten on the sweating stage. Great care, however, is necessary in its administration, for it belongs to the class of acronarcotic poisons. The symptoms that indicate that a sufficiency of the drug has been administered are, dryness and numbness of the tongue, dryness of the throat, and thirst; most of the patients complained of these sensations in from three to five days. It is a most powerful drug, and not one therefore to be entrusted to everybody; but it might be more extensively employed in dispensary practice, I think. From the kernels of the seeds 'a clear, pale, amber-coloured, slightly viscid, acrid oil' is obtained. The natives recommend the oil as a cathartic, but Dr. Shortt reports that hypercatharsis results from its administration. A case of poisoning by one of these kernels is recorded by Dr. J. Balfour in the *Madras Journal of Literature and Science* for 1857.

Clitoria Ternatea (N. O. Leguminosæ).—A very beautiful garden-plant, commonly known as the mussel-shell creeper. Drs. Shortt and Dymock report that the powder of the roasted seeds acts as a purgative; and they recommend that it be given in combination with the acid tartrate of potash. The

dried seeds, powdered and rubbed up with water, form a milky mucilaginous compound of very active purgative properties; much too strong in fact for ordinary purposes. The powder of the roasted seeds is not so active; administered in drachm doses it produces from four to five copious evacuations; it causes a good deal of griping. Combined with the acid tartrate of potash and ginger, it is a very good substitute for the compound powder of jalap; it is a less nauseous drug than jalap. Mr. Moodeen Sheriff recommends an infusion of the root-bark as a demulcent in irritation of the bladder and urethra; it is also said to act as a diuretic. A syrup of the blue flowers has been recommended as a colouring agent by Dr. Haines. Ainslie attributes emetic properties to the root, and considers it useful in croup cases. Sir W. O'Shaughnessy, however, states that, although he has employed the root extensively to ascertain its alleged emetic properties, he has never found it act as such. The alcoholic extract however (in doses of from five to ten grains), he remarks, acts as a brisk purgative; 'but as griping, tenesmus, and feverishness often result from its use,' he does not recommend its administration.

Urginea Indica (N. O. Liliaceæ).—A sherbet made of the bulbs is considered by the Gonds as almost a specific in enlargement of the spleen. I have given the drug several trials, and cannot say that it has been successful. It certainly possesses diuretic properties, and we can readily understand therefore how it might afford relief in the dropsy attendant upon visceral enlargements. Mr. Moodeen Sheriff states that, in doses of from ten to twenty grains, it is a more powerful diuretic than even the officinal squill. Dr. Oswald has employed it (in five-grain doses) as an expectorant in bronchitic affections. The burnt bulb bruised is considered a valuable application in the affection known as 'Ignipeditis.' The drug is said to be largely used by farriers for horses, in cases of strangury and fever.

Celastrus Paniculata.—(N. O. Celastraceæ.) The oil obtained from the seeds is a most powerful diaphoretic administered internally; and applied externally, it acts as a vesicant. The native practitioners obtain the oil by distillation. A ghurra is buried up to its neck in the ground, and above this is placed another ghurra with its bottom perforated; 'the seeds with benzoïn, cloves, nutmegs, and mace,' are placed in the upper vessel, its mouth is closed, and heat is then applied; the oil now rapidly drains from the upper vessel into the lower one. A considerable quantity of the oil, however, is wasted in this way, and I have preferred therefore obtaining it by expression, a common oil-mill being used for the purpose. The oil thus obtained possesses more active properties than that obtained by distillation. I have not found it necessary to combine cloves or other aromatic with the pure oil. The oil is that known as 'oleum nigrum.' It was considered by the late Dr. Herklots, 'a sovereign remedy in beriberi.' I have found it useful in the treatment of dropsy. It is an extremely useful application to rheumatic swellings, and is frequently used for this purpose by the natives. It should not, however, be applied too often, as vesication results. Sir W. O'Shaughnessy states that this oil 'does not differ in any sensible degree from the empyreumatic products of the common fixed oils, containing naphtha and other carburets of hydrogen.' 'Large quantities would doubtless yield paraffin and creasote,' Ainslie informs us that 'the bitter and brownish seed is prescribed

in conjunction with other ingredients, in cases requiring stomachics, and in those diarrhoeas that are supposed to arise from want of tone in the abdominal viscera.' In January last I resolved to give the oil a trial in the treatment of leprosy. Nine patients presented themselves for treatment; I administered the oil (in five-minim doses, with mucilage, three times a day) internally, and applied it externally at the same time. We are all aware that with lepers, sexual vigour is either very much impaired, or altogether lost; this condition appears to be connected with the anæsthesia present; *i.e.*, the more complete the anæsthesia, the greater the loss of virile power. After the oil was administered, there appeared to be a partial restoration of sexual vigour, evidenced by erections and nocturnal emissions, and this led me to hope that benefit would accrue to the system generally also. After two months' trial, however, I must confess, that the oil possesses no power to arrest the morbid changes in the skin.

MAISCH ON POTENTILLA REPTANS.—In an article on potentilla in the *American Journal of Pharmacy*, vol. v. 109, Mr. Maisch writes as follows on the *Potentilla reptans*.

P. reptans, Lin., creeping cinquefoil, is a European and Asiatic plant, growing in damp localities. Its thin, creeping stems bear solitary flowers on long peduncles, and are of a golden yellow colour; the leaflets are elliptical to oblong-ovate, sharply serrate, bright green and slightly hairy above, paler and somewhat pubescent beneath. The taste of the root and herb is sweetish and astringent. This plant (or the tormentil) was probably the *pentaphyllon* of the ancients.

As far as may be judged from the taste, and from the few published chemical experiments, all the species enumerated before contain some tannin, upon which the comparatively feeble medicinal properties mainly depend. The indigenous *P. canadensis*, Lin., the common cinquefoil, or five-finger, resembles the former in taste, and, like them, may be supposed to act like a mild astringent. In the January number of the *Charleston Medical Journal and Review*, however, this plant is highly recommended for other purposes. Dr. Wm. Hauser, of Bartow, Jefferson county, Georgia, writes of it as follows.

'It is the best and most powerful sudorific I have ever found. And like all of its class, it is, under certain circumstances, diuretic also. Dr. Edwin Le Roy Anthony, son of Dr. Milton Anthony, founder of the Medical College of Georgia, assured me, many years ago, that he had cured gonorrhœa with it. But my purpose, in this short article, is to ask the attention of the medical profession to it in the treatment of peritonitis of any kind, but especially puerperal peritonitis. In a large practice of more than twenty years, I have never found anything, nor all other things combined, to equal this simple plant in the treatment of this exceedingly painful, dangerous, and sometimes stubborn disease. I have never failed with it once in all this time, to the best of my recollection. A recent case that gave much trouble and anxiety to two of my honoured medical brethren has brought it afresh to my mind, though I have not been in practice myself for eight years. My method with it is simply this. Make as strong a decoction of the plant (leaves, vines and roots) as possible, and give the patient, at any stage of the case, large draughts of the tea, as hot as she can

drink it, every half hour, or oftener, till she be thrown into full perspiration. All pain and fever will soon be gone, and then you have the entire mastery of the case.'

Some years ago, Dr. Richard Moore, of Sumter District, South Carolina, called attention to this plant as an efficient and useful remedy in the treatment of chronic colds, threatening phthisis; he used it in the form of decoction.

KRAUS ON CREAM OF CAMPHOR.—In an inaugural essay written for his degree of Graduate in Pharmacy of the Philadelphia College of Pharmacy, Dr. O. Kraus states that cream of camphor prepared according to the following formula has been used successfully in inflammatory affections of the throat, also catarrhal and other pectoral complaints of children, it having the advantage over the linimentum ammoniæ, U.S.P., of being free from all oily matter.

Take of—

White Castile soap (in shavings)	3jss
Camphor	3ij
Carbonate of ammonium	3ij
Water	Oiv
Tincture of opium	f3j
Oil of origanum	f3j
Alcohol and oil of turpentine, of each a sufficient quantity.	

Dissolve the soap shavings in three pints of water and stand aside. Dissolve the carbonate of ammonium in the remainder of the water, and mix the two solutions. Then add the camphor, previously reduced with alcohol to a thin paste, and agitate briskly. Oil of turpentine is then to be added in sufficient quantity, to bring the mixture to the consistency of cream, on brisk agitation; after which the tincture of opium and oil of origanum are to be added,—then the whole is to be thoroughly mixed.

As it is readily absorbed by the skin, it may be applied by the hand, or by saturating a piece of flannel and placing over the affected part.

GRASSET ON EMETIC MEDICATION.—M. Grasset's thesis on this subject is thus analysed in the *Archives Générales de Médecine* for June, 1875.

The most recent experiments tend to prove that for the reflex act of vomiting there exists a vomitive centre in the medulla oblongata, in the vicinity of the respiratory centre. The vomitive centre may be directly excited either by an impression imparted by different nerves of general sensibility, as the pharyngeal nerves, or special, as those of the sight and smell, or even by a cerebral irritation. In vomiting of gastric origin, the irritation would be transmitted by the pneumogastric, and not by the great sympathetic. Emetic agents may be divided into three classes, according to their mode of actions in the act of vomiting. (1) The peripheric emetics excite vomiting by exciting the extremities of the pneumogastric nerve; the excitement may occur at the moment of ingestion, if the drugs be absorbed by the digestive passages, or at the moment of elimination by the intestine, if the drug have been ingested into the blood. Ipecacuanha belongs to this class of emetics. (2) The central emetics, of which apomorphia is the type, cause vomiting by directly exciting the vomitive centre. (3) Mixed emetics cause vomiting by simultaneously exciting the peripheric extremities of the vagus nerve and the vomitive centre itself; such as tartar emetic. Eme-

tics, besides the property of bringing on sickness, also possess a certain number of other actions. They generally have a local irritant action on the skin and the mucous membrane; they modify the respiration, the circulation, and the temperature, and increase the secretions; they diminish the excitability of the striated muscles and paralyse them. It is by utilising these different properties of emetics that, by varying the doses, evacuant, irritant, local hyperæmic, hypokinetic, antispasmodic, antiphlogistic, perturbing, or expansive action can be obtained.

CASPARI ON NITRATE OF SODA IN DYSENTERY.—Dr. Caspari (*Bulletin Général de Thérapeutique*, June 30, 1875) recommends nitrate of soda in large doses for the treatment of acute dysentery. This salt was largely employed by Rademacher, who asserted its superiority to all other antidiysenterics. Caspari's experience is chiefly derived from the Frankfort Hospital, where 30 per cent. of the cases, in the autumn of 1871, consisted of acute dysentery. The remedy is as effectual in the rectal form of the disease as in the intestinal variety; when there is reason to believe that the small bowel is much involved, smaller doses ought to be given than when the inflammatory mischief is limited to the lower end of the large intestine. From three to six drachms of the salt may be administered in the course of twenty-four hours, in divided doses; the solution should always be given warm.

E. BUCHANAN BAXTER, M.D.

OBSTETRICS AND GYNÆCOLOGY.

SMITH ON QUININE AS A STIMULANT TO THE PREGNANT UTERUS.—Professor Albert H. Smith, of Philadelphia, in the American Supplement to the *Obstetrical Journal*, offers some practical conclusions of great interest. He thinks that, when the uterus is in a quiescent state, quinine has no power in itself to excite uterine contractions. As to the effect of quinine upon contractions of the uterus developed prematurely from accidental causes, in abortion or early deliveries, in five instances fifteen grains of quinine were administered after the process had advanced beyond the possibility of arrest and the pains were recurring with regularity; in none of these instances was any increase in the frequency or efficacy of the contractions observed, nor when there was hæmorrhage was there any lessening of the flow. When the uterus is in normal labour at full period of gestation, then quinine plays its legitimate part as an aid to parturition. From observations made in forty-two cases, 'in the ordinary run of every day practice, where after actual labour-pains had begun, fifteen grains of quinine were administered in one dose. 'In every case within fifteen minutes there was a decided increase in the frequency and vigour of the contractions, a rapid progress of the labour, and where there was no obstruction a speedy termination.' The labours were terminated with surprising and gratifying rapidity. Cases in illustration are given. The conclusions at which he has arrived are, that quinine increases the activity of the normal uterine contractions; the pains become more frequent and more intense, the expulsive power being greater, while the yielding of the circular fibres of the os is more prompt, the con-

tractions maintaining their proper intermittent character, the relaxation and rest in the interval being complete, showing in this respect an entirely different action from the continuous spasmodic contraction caused by ergot. It promotes permanent tonic contraction of the uterus after the expulsion of the placenta. It diminishes the lochial discharge to a normal standard. Its use is followed by less after-pains than usual in a majority of cases. It reduces the frequency of the mother's pulse, and relieves the nervous demoralisation so often seen in the first stage of labour. Given during parturition it never disturbs the brain or causes its usual unpleasant effects, even in patients who at other times are very susceptible to its influence. To sum up the conclusions:

1. Quinine has no inherent property of stimulating the gravid uterus to contraction; being inert as to any effect upon the womb in a quiescent state, and having no decided action in accidental labours at any period of gestation.

2. To its property as a general stimulant and promoter of vital energy and functional activity, and to that alone, is due its influence upon the uterus in normal parturition; producing then no action peculiar to itself, but merely increasing the power of the uterus to expel its contents by its own natural method, converting what is a defective or even pathological action into a simple physiological process.

By availing ourselves of this power, we may, by administering full doses of the sulphate of quinine at the outset of labour, favour the rapid and safe termination of what might otherwise be a tedious and exhausting work.

DEPAUL ON EXTRA-UTERINE PERITONEAL PREGNANCY.—Professor Depaul (*Archives de Toxicologie*, July, 1875) concludes a series of eight articles on the diagnosis and treatment of this condition.

Surgical interference, on account of the uncertainty of the diagnosis, can only be usefully resorted to on rare occasions before the fifth month, but after this the indications alter. It being possible that the foetus may be developed to the full time, due consideration must be given to its interests as well as the mother's. At what period should we interfere surgically? It is scarcely prudent to wait until the end of the ninth month, but rather the end of the eighth month when, the foetus being able to sustain a separate existence, the interests of both mother and child will be best consulted. This applies to cases of extra-uterine peritoneal pregnancy only, not to tubal, where the risk of rupture of the cyst is much greater.

He cites nine cases, collected from various sources, in which gastrotomy was performed, seven of the infants having been extracted living, and four of the mothers having recovered.

In certain cases where the cyst is low in the pelvis, operation *per vaginam* is less dangerous than by abdominal section. After the death of the foetus severe complications may arise, such as rupture of the cyst, fatal peritonitis, inflammation and suppuration in the cyst, with septicæmia as a consequence. Four illustrative clinical cases are given in detail.

Where the abscess tends to open by the abdominal wall, expulsion of the foetus may be facilitated by means of incision or caustic, the latter being preferred where it is feared that adhesions have not taken place between the cyst and abdominal wall.

If the abscess point *per vaginam*, an incision may equally be made to expedite the expulsion of the fetus.

The cyst may also open into the large intestine or bladder. When the abscess bursts spontaneously, whether it be by the abdominal wall or by the vagina, the openings are often narrow and insufficient, the putrid matters stagnate, and the patient's state becomes anxious. Frequent injections into the cyst should be adopted, and if the bistoury be used, great care must be taken not to incise beyond the limits of adherence between the cyst and the neighbouring parts; death has often resulted from neglecting this precaution. Where the extraction of a living child is attempted, opening the sac by incision is generally requisite; whereas, when there is no immediate hurry, the fetus being dead, and we are not certain about adhesions, the use of caustic in successive applications is safer, the gravity of the operation depending upon opening up the peritoneal cavity. Where the bistoury is employed, there is always danger of cutting down on to the site of the placenta; where caustics are used this danger is eliminated, and as it is generally impossible to extract the placenta or remove the cyst immediately, another serious risk is avoided, the placenta being allowed to come away spontaneously.

FILLIETTE ON UTERINE HÆMORRHAGE OCCASIONED BY A FIBROUS POLYPUS; TRANSFUSION OF BLOOD; DEATH DURING THE OPERATION.—Dr. A. Filliette, in the *Archives de Tocologie*, July, 1875, records a case. The patient, aged forty-nine, had a sanguineous discharge extending over three years, but objected to any examination being made until, when too weak longer to resist the effect of the hæmorrhage, she tardily consented. Her state at this time was one of extreme exhaustion, fainting occurring on the least movement. The extremities were œdematous, the patient blanched and cold.

A polypus of the size of an apple was detected on examination; it was removed, slight traction and a blunt-pointed bistoury being sufficient to accomplish the object; not a single drop of blood was lost either during or after the operation. Soup, wine, brandy, iron, and everything likely to relieve her exhausted condition were given, but frequent faintings becoming more and more prolonged, a very distressing feeling of suffocation and other evident symptoms of impending dissolution suggested the idea of transfusion, which was accordingly performed. The median cephalic vein of the left arm being opened, a trocar was inserted. The husband supplied the blood, which was received into the chamber of M. Mathieu's apparatus and injected direct into the vein of the patient, who rallied from her previous insensibility, opened her eyes, looked at the operators, cried out, 'Give me the basin, etc.,' and then fell back dead, the respiration ceasing at once. Efforts at resuscitation were of no avail.

SMITH ON THE USE OF PESSARIES IN THE EARLY MONTHS OF PREGNANCY.—In the April American supplement to the *Obstetrical Journal*, Dr. A. H. Smith has contributed an important paper showing the influence of previously existing displacement upon the retaining capacity of the uterus in the early months of utero-gestation. He disbelieves in retroflexion as an original factor in the production of early miscarriage, this condition causing, as a rule, dysmenorrhœa and sterility; retroversion on the contrary, he considers, to be the primary condition, and cites three cases in point where dis-

tinct version but no flexion existed. The employment of a modified Hodge's pessary effectually relieves this condition.

He refers to a point of clinical experience of great interest 'which has presented itself too frequently to be a mere coincidence,' that 'when patients who have previously had children have become pregnant while wearing pessaries, they have observed that the sympathetic nausea has been greatly diminished.' In some cases it has made a vast difference in the condition of the patient in this respect from that of previous pregnancies.

TRASK ON INJECTIONS OF TINCTURE OF IODINE INTO THE CAVITY OF THE UTERUS IN HÆMORRHAGE AFTER DELIVERY.—In a paper read before the New York Obstetrical Society (*American Journal of Obstetrics*, February, 1875), Dr. J. D. Trask contrasts the effects of tincture of iron and tincture of iodine (used in the proportion of one of tincture to two of water) in cases of *post partum* hæmorrhage where the ordinary means for arresting it have been tried and failed. He contends that the iron is used as a means of closing the mouths of the vessels by coagula when contractions can no longer be provoked; whereas the iodine solution excites the apparently extinguished reflex action in the uterus, and stimulates the muscular fibres of the womb to contract. Its employment is free from the evils incident to the employment of iron; its antiseptic properties are of service in counteracting the tendency to absorption of septic matter into the system after delivery. As an excitomotor agent, iodine is probably at least equally good, while incapable of causing the formation of thrombi in the uterine vessels, and thus may be used earlier than the iron.

CAMPBELL ON UTERINE DISPLACEMENTS.—Dr. H. T. Fraser Campbell, of Georgia, in the *Atlanta Medical and Surgical Journal*, discusses at some length the effect of postural treatment, combined with pneumatic pressure, in uterine displacements. The object of his report, to use his own words, is 'to establish among gynecologists generally, in this as well as in foreign countries, pneumatic pressure, as it can be evoked and utilised in the genu-pectoral position, as a constantly available and powerful instrumentality; not only for occasional use, in unusual and difficult cases of displacement, but for daily application also, in the mildest forms and degrees of uterine malposition.'

This ready method of 'self-replacement' is accomplished by the patient herself, admitting air into the vagina whilst resting in the genu-pectoral position. It should be done nightly. In many cases of early pregnancy the method seems to be of great value in relieving the many distressing symptoms caused by the increased bulk and weight of the impregnated uterus.

ROSS JORDAN ON THE DIAGNOSIS AND TREATMENT OF DISPLACEMENTS OF THE UTERUS.—In this paper (reprinted from the *Birmingham Medical Review*) the author lays stress upon the importance of diagnosing uterine displacements, in place of allowing patients to go on suffering for years without ever resorting to an examination in order to determine whether treatment will be of any service; and this can only be effected by means of a physical examination, subjective symptoms being often very deceptive. He contends that the only rational plan

of treatment is mechanical. In retroversion a Hodge's pessary will often prove sufficient; but in retroflexion an intra-uterine stem will generally be needed. He advocates the employment of Simpson's galvanic stem in cases of acute flexion, with a view to remove the atrophy of the muscular tissue at the angle of flexion.

EIDAM ON A CASE OF RUPTURE OF THE SYMPHYSIS PUBIS DURING PARTURITION.—Dr. Eidam describes this case in the *Berliner Klinische Wochenschrift*, no. 28. The patient, a multipara, aged thirty, was admitted at 5 P.M. on April 10, 1875, the membranes having ruptured. The pains were weak and far between. At 9 A.M. on the 11th, the right shoulder presenting, turning was accomplished, but delivery was not effected until 6 P.M. On examination some days later, as localised pain was complained of, a distinct rupture of the pubic symphysis was detected. A pelvic girdle was applied, and the patient progressed favourably. A month afterwards on examination the symphysis was found to be unusually thick, but quite firm. The patient was discharged convalescent.

ARTHUR W. EDIS, M.D.

PSYCHOLOGY.

MANN ON ERGOT IN THE TREATMENT OF INSANITY.—In the *New York Medical Record*, June 26, Dr. Edward C. Mann gives an account of the use of ergot in asylum practice.

Some years since Dr. J. Crichton Browne, the medical superintendent of the West Riding Asylum for the Insane, wrote an article advocating the use of ergot in the treatment of mental diseases; and since that time a few members of the profession have availed themselves of its use. The majority of the profession in America are, however, to-day ignorant of the great therapeutic value which this medicine possesses when used with discrimination in the treatment of mental diseases.

It was proved years ago by the researches of Brown-Séquard and others, that ergot possessed the power of producing contraction in the vessels of the spinal cord; and accordingly it occurred to Dr. Browne that it might possess a similar control over the vessels of the brain, and might thus be made to modify or remove the active cerebral congestion which is an attendant upon many phases of insanity. Upon thorough investigation he found that there were three varieties of insanity in which it was eminently useful, namely, recurrent mania, chronic mania with lucid intervals, and lastly, epileptic mania. Dr. Browne, and other observers who have adopted the use of ergot in the treatment of insanity, have found that in the varieties above mentioned it was almost uniformly successful in reducing excitement, in shortening the attacks, in widening the intervals between them, sometimes in preventing their recurrence entirely, and in warding off the dangerous stage of exhaustion by which maniacal excitement is so often succeeded. The way in which ergot operates upon the contractile coats of the vessels has been proved to be by its influence upon the non-striated muscular fibres and cells contained in their coats, thereby exercising a controlling power over the calibre of the intracranial vessels. In the three varieties of insanity before referred to—in recurrent mania, in chronic mania

with lucid intervals, and in epileptic mania,—we find that the lesion consists essentially in cerebral hyperæmia. We find, although the symptoms differ in these three forms of mental disease in which ergot is useful, that there are present in each form increased arterial pulsation, flushing of the face, suffusion of the eyes, dryness of the mouth, and cephalalgia. The disappearance of these phenomena in the intervals of the paroxysms, proves that they are dependent upon functional and not organic changes in the brain, in which latter case we should not expect to find any marked efficacy from the use of ergot; and, indeed, we often meet with instances in which the controlling power of ergot is after a time lost, as organic degeneration gradually follows as a sequence upon repeated attacks of mania. In epileptic mania it will be found that a combination of bromide of sodium with ergot will materially aid the action of the latter in widening the intervals between the fits, and in modifying the attacks when they occur. This combination will also often arrest paroxysms in the incipient stage. The stage of excitement which often precedes and ushers in the attack, and which sometimes succeeds it, is markedly diminished by the combination of the bromide of sodium and ergot. The bromide of sodium will be found to be preferable to the bromide of potassium, as it is pleasanter to the taste and causes less constitutional disturbance than the latter when given in large doses. Dr. Browne remarks that 'it is in epileptic mania that ergot has been found pre-eminently valuable in allaying and abolishing excitement, and in conducting to a healthier tone of mental action. In the outbursts of violent agitation, which precede or follow a fit or group of fits, which occasionally take their place, and which have been pronounced by all authorities to be of so dangerous a character, it exerts a prompt and energetic effect. We may presume that these outbursts are dependent upon a want of equilibrium in the intracranial circulation, primarily disturbed by the epileptic seizure or condition. The distension of the vessels, which succeeds their spasmodic contraction and produces coma, subsides so far as to allow the resumption of activity by the higher centres, but only in an irregular and distorted way. And we may presume, further, that the soothing and rectifying effects of ergot are due to its power of re-establishing that disturbed equilibrium.'

A thorough trial of the ergot treatment has satisfied the writer of its efficacy in asylum practice.

LEY. ON INTEMPERANCE AS A CAUSE OF INSANITY.—Mr. Ley, in his admirable report on the Prestwich Asylum, states, in reference to intemperance as a cause of insanity, that: 'In the admissions of the past year, although intemperance figures largely in the table of causation, it is probable that its influence as a producing agent of mental disease has been under-estimated. The extent to which it has acted as an immediate cause of the malady can be only partially arrived at, as many of the admissions are brought and left at the asylum without any history, and in these and other instances the cause of the mental disease has to be determined from the character and form which the malady assumes. [How is that done?] But even if all doubtful cases be excluded from our calculations, there still remains a large percentage both of males and females in whom intemperance, if not the sole cause of the insanity,

was a most important auxiliary. The greatest number of admissions in this asylum always occurs during the month or six weeks following the Lancashire Carnival, Whit-week. In the month of June last year no less than seventeen males and four females were admitted suffering from mania, induced by excessive and persistent drinking. Of these, four had attempted suicide, and had extensive wounds of the throat on admission. These instances of the direct effect of intemperance occurred, with scarcely an exception, among a class who were in receipt of good wages from regular employment, and who, therefore, had not the excuse of the half-starved and ill-clad poor. There is no disguising the fact, that among the labouring classes insanity has of late years increased by a reckless course of inebriety, favoured in a great measure by a plethora of money and an abundance of leisure. In Lancashire, as probably elsewhere, high wages and short hours of work have not been by any means an unmixed benefit to the recipients. More money has been available for the purchase of drink, and more drink, as a natural consequence, has induced greater physical and moral deterioration.

CLOUSTON ON THE PATHOLOGY OF GENERAL PARALYSIS OF THE INSANE.—Dr. Clouston, in his Morisonian Lectures on Insanity for 1873 (*Journal of Mental Science*, July, 1875), comes to the following conclusions respecting the general paralysis of the insane. 1. It is a disease of the grey or cellular parts of the nervous system. 2. It illustrates better than any other disease with which we are acquainted the tendency to that progressive degeneration which specially characterises the diseases of the nervous system; for it not only goes on steadily from bad to worse, but advances into ganglia, such as the retina and sympathetic, that have no continuity with the brain except by white fibres. 3. The disease is in all its symptoms—mental, motor, sensory, and vaso-motor—chiefly characterised by symptoms of weakness of power and want of co-ordination; it is, in fact, essentially a dementia and paralysis from the very first. 4. The stage of maniacal excitement of the disease is accompanied by such increase of temperature and symptoms of congestion of the brain as strongly point to its being the result of a process, either inflammatory or closely allied to it, not affecting the meninges only, but more especially the cortical substance. 5. The excitement of the congestive attacks is accompanied by stasis of the blood in the capillaries of the pia mater, as shown by the tendency to apoplexy and false membranes. Those false membranes seem to hold an intermediate position between the products of œdema and of inflammation. 6. The origin of the disease is usually in exhaustion or irritation of the brain-cells that regulate and control the co-ordinating centres of mental function and motion—in other words, that element of the nervous centres that has the very highest and most important function of all; this irritation or exhaustion sets up a diseased degenerative process in them, which slowly but certainly spreads to every group of cells in the nervous system with which those higher centres have direct relation. 7. So far as our present pathological facts go, we have more reason to suppose that the disease begins in the outer layer of the cortical substance of the brain than in any other part, but that it may first affect different convolutions in different cases. Dr. Clouston thinks that there are two causes which above all others produce

the disease; these are intemperance and sexual excess. The one causes irritation, the other exhaustion, of the brain. The disease prevails, however, among a class who add to these two things, great muscular exertion, namely, the coal and iron workers. The disease is more than thrice as common in Durham and Glamorgan as in the rest of England. In such a class, therefore, three of the very strongest causes of exhaustion and irritation of the brain are applied at once.

ATKINS ON THE MORBID APPEARANCES IN A CASE OF ACUTE INSANITY.—Dr. Ringrose Atkins reports (*Journal of Mental Science*, July, 1875) the case of a man aged twenty-three, who was admitted into the District Asylum, Cork, having been transferred thither from the South Infirmary, of which he had been an in-patient for a very short time for chest-symptoms. He was perfectly incoherent, knew nobody, and was unable to answer a question rationally. His respiration was hurried and shallow, his lips dusky, and cough troublesome. He only took food under pressure. He sank and died in about a week from the commencement of the mental symptoms. The body was much emaciated. The skull was very vascular. The dura mater was smooth, and during its removal a quantity of dark liquid blood escaped from the distended sinuses. A small quantity of fluid was present under the pia mater, the vessels of which were intensely congested and distended with blood. There was no lymph, and no adhesions. Both lungs were studded throughout with miliary tubercles; the left lung was highly engorged with a vomica in its apex, and the right lung was greyish.

The following appearances were observed. 1. Frontal Lobe.—Many vessels were packed with blood-corpuscles and dilated; but the majority were empty. Outside the walls, and adhering to them, in numerous cases, was a bright yellow exudation, somewhat granular; this was chiefly in vessels the walls of which were extremely thin. The outer fibrous coat of many of the arterioles was thickened and corrugated without exudation. 2. Parietal Lobe.—Many vessels passing from the pia mater to the cortex were crowded with yellowish blood-corpuscles, but many were empty. Numerous minute extravasations were seen between the pia mater and brain, chiefly where the pia mater dipped down into the sulci between the secondary and minor convolutions. No extravasations were seen in the brain itself, and the yellow exudation was less here. Many arterioles had their coats thickened, and in several minute thrombi occupied their calibre. 3. Occipital Lobe.—The same appearances were present here in greater or less degree. The cells and neuroglia were perfectly healthy. Dr. Atkins thinks that the mental derangement was due to congestion caused by the condition of the lungs. The left lung was gorged and the vessels plugged, which must in turn have produced an almost similar condition of the cerebral vessels, and hence, as a consequence, through disturbance of nutrition of the nervous tissues, the mental disorder.

HUREL ON PRISON INSANITY.—Dr. A. Hurel has analysed fifteen cases of insanity occurring in prisoners, who were on this account transferred from the central prison of Gaillon to the asylum at Eyreux (*Annales Médico-Psychologiques*, March and May, 1875). Of these fifteen, three were cases of mania, three of melancholia, three of dementia, two of

general paralysis, and one of epileptic insanity, while in three the insanity was feigned. Dr. Hurel considers them with a view of ascertaining whether the insanity can be charged to the imprisonment. As to this, he tells us that in two patients insanity was noticed on their admission into the prison; in a third it was apparent on the third day after admission. The two former were the subjects of general paralysis, the latter of epileptic insanity. A fourth, whose insanity was melancholia, with delusions of persecution, became insane in consequence of his conviction. Another showed symptoms of mania almost immediately after admission, and a sixth was in a state of senile dementia. In six cases the insanity appeared at some distance from the time of admission. One had shown signs of melancholia before condemnation; in another it may have been due to the trial and conviction. A third was a notorious drunkard, and a fourth was always addicted to vile habits and crimes. In two alone of the twelve the incarceration seemed the cause of the mental disorder. Of the whole number of prisoners, the proportion of those transferred as insane in seven years was only 2 in 1,000. M. Hurel speaks strongly of the necessity of separating epileptic persons from other prisoners, and also from ordinary insane patients, and quotes Dr. A. Foville, who thinks that they require a kind of intermediate establishment, half-prison, half-asylum.

G. FIELDING BLANDFORD, M.D.

RECENT PAPERS.

- Study on those showing Stigmata, with Special Reference to Louise Lateau. By Dr. Semal. (*Archives Générales de Médecine*, July, 1875.)
 A Chapter on Some Organic Laws of Personal and Ancestral Memory. By Dr. Laycock. (*Journal of Mental Science*, July, 1875.)
 The Morbid Psychology of Criminals: Moral Responsibility. By J. Messenger Bradley. (*Ibid.*)
 On the Explanation of the Numerous Phenomena consequent on Old Age. By M. Chevreul. (*Gazette des Hôpitaux*, July 6.)

TOXICOLOGY.

KUYKENDALL ON CANNABIS INDICA.—In the *Philadelphia Medical and Surgical Reporter* of May 29 is a communication on personal experience of the effects of cannabis Indica, by Dr. G. B. Kuykendall. He writes: A short time since I procured a new lot of the purified extract of cannabis Indica; and, being desirous of using it in the case of some neuralgic patients, I thought I would test its strength before prescribing. I had many times before tried other lots, but never experienced any effect, more than a slight exhilaration. On the present occasion I opened the jar a short time before dinner, and noticed that the extract had a fresher appearance and a stronger narcotic smell than any I had previously seen. With my pocket knife I took out, I suppose, a grain, certainly not more than that amount. It was observed to have, in a remarkable degree, that acrid tobaccoish taste common to most of the narcotic weeds. About half an hour afterwards I was at the dinner-table, and we were all laughing and jesting, and enjoying our meal with more levity than usual, I taking lead in the merriment. I was just about finishing dinner, when suddenly I felt a thrill pass through me, the room and the dining-table seemed to rise up and swing, or

float about. Then there was a sensation of lightness and dreaminess connected with everything. I had been conversing, but in the beginning of these sensations had leaned upon my elbow on the table, which attracted the attention of my wife, who asked what pained me. I answered that there was no pain, but that I experienced a peculiar kind of sensation which I hoped would soon pass away. Summoning up my will, I arose and walked into the parlour, and took a seat, and tried to compose myself; but the sensations continued to come on. For a few seconds after the first thrill, I thought all was going to pass off, but now the symptoms were increasing in intensity. I arose and went to the glass to look at myself, and to notice the appearance of the pupils of my eyes. I remember distinctly that they were perfectly natural, neither dilated nor contracted, but my face was very pale—from fear, I think, mostly, as the sensations I experienced were so peculiar that they alarmed me. Up to this time I would not believe I was under the influence of cannabis. My condition rapidly grew worse—worse, I say, for my sensations were of the most disagreeable and horrible nature possible. I felt as if reason were being hurled by violence from its throne. Sensations and states of consciousness, rather than ideas, were wildly passing through my mind. I called for an emetic. While it was being prepared, I was all the time becoming more and more restless and agitated. I arose and walked out into the hall, and then thought to myself, what is the use of my running around like a wild man, and returned and sat down in my chair, but could not be easy. The emetic was brought, and I swallowed it—nearly half an ounce of fluid extract of ipecacuanha.

By this time my condition was awful in the extreme. My own voice sounded strangely to me, and seemed to startle me when I spoke, while the voices of those about me sounded as if obscured by a gauze or veil over my senses; the sounds seemed far off, dreamy and unreal. I was beginning to have a sort of double or even triple consciousness. It seemed as if I were living three lives at once. Anything spoken to me immediately seemed to have been an age ago. The few movements I made were governed by the will, and yet they seemed automatic, as I could not feel myself move. Indeed, I seemed to have lost my body and become all dreamy imagination. I moved occasionally, but had no physical sense of doing so. After swallowing a quantity of warm water, I unbuttoned my vest, but did not seem to touch the buttons, and yet I must have had some sense of feeling, for I did not watch the movements of my hands. I saw with my eyes; but nothing was natural. I looked at the wall and the objects around; an impression was made upon the sensorium, and the visual impression seemed hurried off at lightning speed, then immediately the same impression was made with some different phase, while an age almost seemed to intervene between these changing states of consciousness. A moment seemed an eternity; the most terrible impression came over me. My mental states and sensations seemed to move in circles. Rapidly, smoothly, and noiselessly, I seemed to be carried down a psychical maelstrom. The voices about me sounded in my ears as a dull, dreamy droning, although I understood all that was said. Dissolution seemed imminent. I still could get out, by great effort of the will, as it seemed to me, short sentences; but when I spoke only three words, before the third was uttered the first seemed

to be far in the dim distant past. When I spoke, I seemed as if started from a dream; a flash of light came before my eyes, and everything seemed to rise up suddenly before me. I remember that the floor seemed to me to be sloping up before me, and pitching off behind. I now laboured fully under a triple consciousness, two dreamy and unreal, and underlying these, apparently, was my real self, obscured by the intoxication upon me. I seemed to pass successively from one state of consciousness to another. When in one state, I remembered the successive changes of sensation in that state that had occurred previously. Noise or movements seemed to transfer me immediately to another state of consciousness. In this new state, the recollection of the sensations in the other state were dim and soon forgotten, while I seemed to remember back in the line of consciousness in which I then was.

Through all these wonderful psychical phenomena, I preserved a good degree of rationality. I remember distinctly to have reflected, 'What is my condition?' 'How long is it going to last?' I told the attendants to get mustard and warm water. When they were going to give me lemonade, I tasted it, and said, 'It is not sour enough; put in citric acid, it is the acid that is the antidote to the hasheesh.' During all this time I was sitting stupidly in a chair, before the stove, making but few movements. I lost all correct idea of time; a moment seemed an age; I thought they never would get the mustard and water for me. After drinking the mustard mixture I called for warm water, and thought they would never get it ready, and called for it, as I thought, about once every fifteen minutes, supposing they had forgotten to bring it. My wife says I spoke incessantly, repeating my request as fast as I could. As I recollect now, it seems to me I called only three or four times for anything, and then at long intervals. I still seemed to be sinking down into the maelstrom, and was nearing the apex below, when suddenly I gave a retch, and began to vomit. While in the very act of straining to vomit, I felt more natural. The vomiting over, I felt I was about gone, and said, as it seemed to me, with an awful effort, 'Put me in bed; I shall know nothing in a few minutes more.' At one time I really thought I was entering the world beyond, and was wondering how things would appear, when something changed the current of my ideas. Just as I started to bed I had reached the climax of wretchedness. A few minutes before I had taken some lemon-juice, which they brought me instead of the citric acid solution I had called for, and now the symptoms seemed to begin to abate. The revolving panorama of sensations seemed to move more slowly, and each revolution appeared to bring me back, up, more to the light, and to myself again. I was now in bed, had walked from the kitchen, but did not feel the floor; with a feeling of relief, I said, 'I shall get all right again.' My hands now began to become cold, and then my feet, and I requested to be kept warm, and asked to have my hands rubbed. From this on I dozed in a dreamy, intoxicated manner; for a few seconds I lost myself in sleep, and then started up; still I had no correct idea of time; my hands were still cold, and I asked the attendants to chafe them, and then dropped into a doze, and after, as it seemed to me, half or three-quarters of an hour, I aroused and repeated the request. Those who were attending me say I was incessantly repeating my request. They put warm bricks to my feet, and

I immediately dozed off again, and in less than half a minute asked them to put something warm to my feet, saying I was nearly frozen. I was reminded that it had already been done a moment before. I remembered the circumstance, but it seemed to have been at least two or three hours before. From this on, the symptoms of intoxication gradually abated. After dark, at seven o'clock, I could converse very readily, but time dragged very slowly. Towards morning I slept somewhat more naturally, but was nervous, and felt aching in my back and neck, and soreness of my sides, from vomiting. Next morning my appetite was poor, my head ached, and I felt dull all day—much the same, I imagine, as a man after a drunken spree.

During the whole operation of the medicine the pupils of my eyes were perfectly natural, and after the first few minutes the colour of my face was the same as usual. My pulse was at first rapid and strong, afterwards not so strong, but faster than common; my hands and feet were cool, from the end of the first to the middle of the third hour. At no time was there any tendency to spasmodic movements of any kind, no twitching of the muscles; the disposition was rather to lie inactive and quiet. I was about six hours under the influence of the drug, but the climax of the symptoms was reached in about an hour and a quarter. Had the emetic and lemon-juice not been taken, the effects of the poison might have been more intense and prolonged.

Taking the drug as I did, just before dinner, it had time to be well spread over the mucous coat of the stomach, and when the process of absorption began with the meal, the whole of the medicine was suddenly thrown into the circulation. The same amount of the cannabis taken two hours after a meal, would not likely have produced so much effect. My experience with hasheesh leads me to think it a very powerful drug, but extremely uncertain in strength, as found in the shops. Used in large doses, or in improper cases, it is capable of doing serious injury to the nervous system; while in those cases to which it is suited, it is a remedy of questionable value.

J. MILNER FOTHERGILL, M.D.

SMITH ON OPIUM-POISONING.—At a meeting of the New York Medical Society (*New York Medical Journal*) Dr. Andrew H. Smith read a paper on poisoning by opium and its treatment. He brought out strongly the fact that the number of the respirations is not always an index of the amount of narcosis, and gave an idea as to what extent belladonna might serve as a physiological antidote. In poisonous doses of opium the stage of excitement is usually limited to a short time, if not entirely wanting, and to it succeed dizziness, nausea, and sometimes vomiting. The face is at first dusky, but by degrees becomes pale. The pulse at first is bounding, but in a short time sinks below the normal rate. Convulsions may occur, but they are most likely to do so in children. The intellect is completely in abeyance, though it is usually possible to arouse the patient till the coma is profound. Delirium occasionally manifests itself, though it is not characteristic, as in poisoning by belladonna. The narcotic influence is exerted, partly by pressure on the brain from paralysis of the vaso-motor nerves, and partly by the direct influence of the drug on the cells of the brain. The effect of opium in contracting the pupils is due to its central action on the nerve supplying the pupil,

and in this respect it differs from belladonna. Belladonna acts on the periphery of the nerves, as proved by applying atropia to the eye. Morphia applied in a similar manner has no action whatever.

It has been supposed that the respirations were a criterion of danger, but latterly evidence has been accumulating which proves that they cannot be relied on, as is evident from the cases reported. When death approaches, the temperature falls; and the pulse, which earlier was increased in frequency, decreases. If the patient suffer from peritonitis, the pulse sinks below what it was before the opiate was administered, but does not do so in proportion to the respirations. There is no specific lesion in opium-poisoning. Congestion of the brain is usually found, and sometimes there occurs hyperæmia of the mucous membrane of the stomach; but when this latter condition is found, it can be attributed to the alcohol in the laudanum. The diagnosis rests mainly between apoplexy, depressed fracture of the skull, uræmia, and poisoning by alcohol. In apoplexy, there are hemiplegia, pulsation of the carotids, and inability to rouse the patient from the coma. The same is true of depressed fracture, with the additional fact of injury found on examination of the head. In alcohol-poisoning, the patient, when aroused, manifests anger, and in the breath there is the alcoholic odour. This may, however, and does frequently, complicate poisoning by opium. In uræmia, the urine is the main reliance for diagnosis, but in this and the other cases there is not the contraction of the pupils which, in poisoning by opium, continues till near the close of life.

The treatment resolves itself into the evacuation of the stomach; the administration of belladonna and such stimulants as coffee; keeping up some irritation, such as walking, the faradic current, and the cold douche, and careful attention to respiration to prevent its flagging. The administration of oxygen gas has proved a most valuable aid in this latter respect. It seems, moreover, to have a more extended influence than would at first be supposed; and this is caused, in all probability, by accelerating capillary circulation, and possibly by aiding in the destructive assimilation of the poison. In regard to the evacuation of the stomach, if the patient be seen early, mustard, sulphate of zinc, or sulphate of copper, may be given to cause vomiting; but if this fail to act soon, or if it have been some time since the taking of the drug, the stomach-pump must be used. The emetics may be increased in their efficacy by kneading the epigastrium from time to time. Belladonna has long been supposed to have an action antagonistic to opium, from its effect on the pupil, but much obscurity attends its use: 1. from the amount required to act as an antidote; and, 2. from the lack of knowledge of the amount of opium taken into the system. It is now known that belladonna, up to a certain point, has an effect antagonistic to opium: the respirations are quickened, and the circulation is increased. Beyond this point it deserts us, and goes over to the enemy, increasing the prostration and complicating the case. It is safe to give from $\frac{1}{10}$ to $\frac{1}{5}$ of a grain of atropia hypodermically, and supplement it by the administration of a strong infusion of coffee. A dose of atropia larger than this is given with risk, as it is impossible to tell not only how much of the opiate has been taken, but also how much of it is absorbed and exercising its influence. The patient should be kept continuously irritated, either by walking, or, if quite

unable to walk, by the faradic current. Pain exerts a protective influence on the system, and in cases of spasmodic pain, where opiates have been given, it is occasionally found that during the continuance of the pain but slight influence of the anodyne is detected, whereas, when the spasm ceases, dangerous narcotism may and often does supervene.

The dangerous sequelæ of opium-poisoning, when recovery is being established, are, first, a relapse; and, secondly, pneumonia. The pneumonia is probably caused by the state of the blood in the lungs. It has been supposed that the respirations are an index of danger after the administration of opium, but, though this is true as a rule, it is becoming known now that there are many exceptions to it, and that great danger may be impending when the respirations are either normal or above the normal rate.

Dr. Smith gave notes of the following cases.

The first case was a patient suffering from puerperal peritonitis. When seen, she was in a profoundly comatose state, cyanosed, but the respirations averaged about eighteen during the minute. Under the use of oxygen gas the patient soon rallied, but died eventually of pneumonia.

The second case was in a patient aged forty. Magendie's solution was administered every two hours, in ten-minim doses; after eight or ten hours the respirations sank to ten per minute, then rose to fifteen, and again dropped to twelve, and then ten; afterward they rose to twenty-two per minute. The patient at that time was cyanosed, and in a state of coma; oxygen gas was administered, and soon afterward the patient passed out of the narcosis.

The third case was communicated by Dr. J. J. Reid. It occurred during his service at Bellevue Hospital. The patient was taken into the hospital ward suffering from narcosis; the respirations were about five or six per minute, and the coma profound. The cold douche was used, and the respirations rose to eighteen or twenty per minute, and continued so for three or four hours, when the patient died.

The next case showed the good effect of oxygen gas: the respirations were five in three minutes, but no difficulty was found in arousing the patient; after the administration of the gas he rapidly recovered.

The fifth case occurred at St. Luke's Hospital. The patient was found in a comatose state in Central Park, with a respiration averaging one in two minutes; after two hours, oxygen gas was given, and in three or four hours he had recovered from the narcosis. He took the drug twelve hours before being discovered.

The sixth case was very much improved by oxygen gas, but afterward developed pneumonia and died.

The seventh case had increased respiration, and died from the narcosis.

The oxygen gas given in the above cases proved more beneficial than any other agent used in rousing the patient from the lethargy. The method of administration was to fill an India-rubber bag with the gas, and then introduce the inhaler into one nostril, leaving the other free to receive atmospheric air.

Dr. Baylis read a case of opium-poisoning, which was of interest from the large amount of the narcotic taken. During a period of three and a-half hours the patient took five grains of morphia, and six hours after he took the last dose of morphia, narcosis set in. In this man there was pulsation of the carotids, a rare symptom in opium-poisoning. The respirations numbered two per minute. Sulphate of atropia was given in one-fortieth grain

doses hypodermically, and in forty-five minutes the pupils began to dilate; at the expiration of an hour-and-a-quarter this dilatation was complete. Oxygen gas was administered, and in eighteen hours the patient had recovered. Dr. Baylis noted as strange that when the patient rallied from the coma there was perversion of the intellect, but this was explained by Dr. Smith to be due to the atropia administered.

Dr. Joel Foster related a case where twenty-five grains of morphia were taken by an officer in the navy, and the patient afterwards recovered.

Dr. Peaslee narrated the case of a young woman who took about thirty grains of morphia, and afterwards recovered completely.

Dr. Smith, during the reading of his paper, said that Dr. Mary Putnam Jacobi anticipated the observations in regard to the effects which belladonna exercises in the system upon opium, made by a commission appointed recently in England.

RENAUT ON CHRONIC LEAD-POISONING.—Chronic lead-poisoning is produced when the lead, constantly absorbed into the organism, cannot be eliminated in proportion to its introduction, and partly fixes itself in the tissues in a state of combination with the albuminoid substances.

The slow saturation of the animal economy by the metal renders the individual saturnine, and prepares in him a fresh ground, containing a reserve of lead, which, under the influence of accidental causes, may pass back in a notable quantity into the blood and bring on accidents analogous to those of acute poisoning or presenting special characteristics. The first effects of lead impregnation are, production of saturnine anæmia (hypoglobulia, with augmentation of the size, and loss of plasticity of the corpuscles, Malassez), polycrotism of the pulse (Lorrain and Marey), plumbic colouring of the skin, colic, dyspepsia, acute or chronic saturnine asthma then come on; encephalopathia, disturbances of sensibility, ataxy (Vulpian and Raymond), disturbances of hearing and sight, paralysis, contractions, tremblings, arthralgias, etc. The accidents which may be characterised as accidents of elimination are renal lesions, albuminuria. The predominant phenomenon of chronic saturnine intoxication is its action on nutrition, the arrest of the nutritive changes bringing on saturnine cachexia. The influence of this intoxication does not only affect the individual; it also makes itself felt in the vitality of the species. M. C. Paul has demonstrated that it induces abortion, or the production of non-viable or feeble children. M. Roque has ascertained that a considerable number of idiotic or epileptic children were the offspring of saturnine subjects, in whom saturnism alone could be cited as the cause of decline. The influence of saturnine intoxication on the production of gout and general paralysis is now established; its antagonism with tuberculosis is strongly contested. The different treatments of lead-poisoning pursue two different objects; either the neutralisation of the lead introduced into the economy (sulphur, iodide of potassium) or its elimination. Opium is useful by combatting the spasm of the capillaries. According to an analysis of M. Renaut's work in the *Archives Générales de Médecine*, for July, 1875, at the same time that the author gives a detailed clinical exposition of the accidents of lead-poisoning, he has set himself to furnish the explanation of these accidents, in accordance with the most

recent data of pathological anatomy, physiology and medical chemistry. These researches give quite a special interest to his work.

PALMER ON THE DETECTION OF OPIUM AND DHATURA.—Surgeon-Major W. J. Palmer, in a highly interesting report of the work performed in the Chemical Department (Calcutta) during the year ending March 15, 1875, including a vast field of experience, has the following paragraphs.

Detection of Opium.—The value of amyl alcohol as a solvent for separating morphia from the purified extract obtained by Stas's process, after ethyl ether has been used to extract the narcotine and porphyroxin, is scarcely yet recognised as fully as it deserves. Its use facilitates the separation and isolation of morphia to such an extent as renders it possible to obtain reliable evidence of the presence of this alkaloid in cases where the quantity is so small that no decided or positive opinion could be formed without its aid; morphia being almost insoluble, or soluble to such a very limited extent, in the ethyl ether ordinarily used, as to render it almost impossible to detect its presence when this fluid alone is relied upon for its separation.

The merits of the porphyroxin colour-test for opium being under discussion just now, its value has been carefully inquired into in each of thirteen cases which have come under observation in this department during the year. In most of the cases the colour has not only occurred, but the depth of colour developed has appeared to bear a proportionate relation to the quantity of the other constituents, viz., meconic acid, narcotine, and morphia, subsequently found in the same case. In one solitary case, however, where both morphia and meconic acid were undoubtedly present, no porphyroxin coloration could be induced to manifest itself. Though its presence, therefore, corroborates the conclusion arrived at from the detection of the other constituents, and also affords grounds for an approximate estimation of the quantity of such other constituents, its absence in any given case does not appear to justify the conclusion that opium is not present. My own opinion, formed after some experience in the Opium Department, is, that the colour-forming material exists in much greater abundance in Indian than in European opium, and therefore that this coloration is of much more value as a test for the former than for the latter.

Detection of Dhatura.—It has been recently stated that the spermoderm or husk of the dhatura seed, as it exists in drugged food, as boiled rice or baked flour-cakes, although liable to be confounded with husks of wheat or leguminous food-grain if examined by the naked eye only, may, if examined under a magnifying power of sixty diameters, be readily distinguished from them by its colour and very beautiful structural characters. This statement, though perfectly true so far as it goes, appears to be liable to lead to very grave error; for no mention is made in the paper of the testa or covering of the capsicum-seed, which resembles that of dhatura so closely, both in colour and structural arrangement, as to render it extremely difficult, if not quite impossible in some cases, for the most experienced observer to distinguish one from the other, even with the aid of any magnifying power whatever. Capsicum-seeds are so frequently found mixed with the food of inhabitants of Bengal and the Upper Provinces, that little or no reliance is placed in this department upon

the evidence afforded by the above-mentioned characters, unless such evidence be corroborated and confirmed by the co-existence of the recurved embryo peculiar to, and characteristic of, the genus *dhatura*, or by the peculiar physiological action of a prepared extract on the pupil of a cat's eye; either of which characters, if present, affords a sufficient safeguard against the possibility of mistaking portions of harmless capsicum-seeds for the poisonous *dhatura*.

OPHTHALMOLOGY AND OTOLOGY.

LADREIT DE LACHARRIÈRE ON MÉNIÈRE'S DISEASE.—In the first number of the *Annales des Maladies de L'Oreille et du Larynx*, Dr. Ladreit de Lacharrière gives a concise *résumé* of Ménière's disease, and reviews the opinions of some of the authorities on the subject. He believes that the disease is always characterised by lesions of the labyrinth, and that those affections which have not their seat there, although they closely resemble it in their symptoms, can always be distinguished from it. He divides the symptoms into the transient, under which he places the syncope, the vomiting, and the headache; the more persistent, including therein the vertigo and the tinnitus; and the constant, which is the deafness. In relation to the last symptom, he says that when all the other morbid phenomena have disappeared, the deafness generally persists to a considerable degree, though possibly not always so complete as at first.

Among the diatheses, the author thinks that the syphilitic and scrofulous play an important part in Ménière's disease, as he has frequently seen the affection of the labyrinth appear at the same time as the tertiary symptoms of syphilis, and he therefore thinks there is a connection between them. Moreover, he adds, syphilis and scrofula are constantly showing themselves in affections of the mucous membranes and periosteum, and are very frequent causes of the diseases of the ear. As other causes, he mentions injuries or concussions to the head, causing osseous lesions, purulent catarrh of the middle ear, and polypus of the ear.

The diagnosis of the affection is not difficult when the symptoms appear suddenly, when it is remembered that, being an affection of the labyrinth, the deafness must be more or less complete, and that three symptoms are always present—namely, deafness, tinnitus, and vertigo. Where deafness and tinnitus occur without vertigo, he says the cause of these phenomena will always be found in lesions of the middle ear. Where vertigo and tinnitus are complained of, but the hearing is intact, a lesion of the middle ear, cerebral congestion, and epilepsy ought to be looked for. But where the three symptoms are present, without sufficient lesion of the middle ear to explain them, a lesion of the labyrinth is to be assumed. Dr. Ladreit de Lacharrière also looks to the character of the tinnitus, and avers that the patient suffering from affection of the cavity only never complains of the musical and bell-like bruits, which are spoken of by those suffering from Ménière's disease. Further, when the deafness, as determined by the tuning-fork, is slight—not differing much from that of the sound side—he thinks the observer may rest assured that the disease is limited to the organs of transmission.

The progress of the affection, according to his experience, varies. In the cases where the onset has been sudden and violent, the morbid phenomena pass off by degrees, but deafness always remains to a variable extent. Where, on the contrary, the disease has progressed slowly but regularly, the deafness remains complete.

The treatment is not so hopeless, according to Dr. Ladreit de Lacharrière, as is generally believed in this country. He has, he says, frequently had the satisfaction of ameliorating the state of patients who have come under his care. His treatment is etiological. If inflammatory affection of the labyrinth be supposed to be present, antiphlogistics are indicated; while if syphilis have probably been the cause, mercury, iodine, or iodide of potassium is tried.

BERTHOLD ON EXAMINATION OF THE RETINA, THE TYMPANIC MEMBRANE, AND THE LARYNX.—Dr. Emil Berthold, of Königsberg, gives, in the *Berliner Klinische Wochenschrift* for June 21, a description of a simple method, by means of which two observers can simultaneously examine the retina, tympanic membrane, or larynx.

In examining the fundus oculi the indirect image is obtained by one observer in the usual way, a concave mirror being used in preference to the plane or to the non-silvered glass plates of Helmholtz. The second observer, standing at the side of the observed eye, looks through a concave mirror, of from fifteen to twenty inches focus, at the image in the mirror used by the first observer. It is necessary that the opening of the first observer's mirror should be small, so that the opening interferes as little as possible with the image seen by the second observer. The corneal reflex seems to be the difficulty to be overcome, as the first observer must hold the object-lens in such a position that the reflex does not interfere with either his own or the second observer's view of the image. Dr. Berthold says a little practice soon sets aside this difficulty.

The examinations of the larynx and the tympanic membrane are conducted in the same way; but with them it is easier, as there is no disturbing reflex. The examination of the *membrana tympani* can be made either by artificial light or by day-light. If by the latter, the mirror which reflects light directly on the membrane ought to have a focus several inches greater than the distance between the mirror and the membrane, by which means the second observer will see a somewhat enlarged image of the membrane in the mirror without having to use a second mirror.

W. LAIDLAW PURVES.

GIRAUD-TEULON ON DEFECTS OF VISION IN CONNECTION WITH MILITARY SERVICE.—The *Bulletin de l'Académie de Médecine*, June 15 and following numbers, contains a very severe and long criticism by Dr. Giraud-Teulon upon the present methods of examination, and upon the mode of testing the vision of recruits in the new French army. In order to make his criticisms more clear, Dr. Giraud-Teulon explains step by step the various methods of investigation which are employed in civil practice, and compares with these the proceedings of the military boards as carried out in accordance with instructions from the minister's bureau. As the French army, as reorganised, consists of an active force, of certain reserve forces, and of volunteers under special circumstances, Dr. Giraud-Teulon contends strongly that a hard and fast limit of vision should not be insisted upon for all these different grades of

the service, inasmuch as a recruit whose vision is too imperfect to qualify him for active service as a combatant may yet be eligible for duty of another kind and in other situations; whereas, according to the instructions now issued, he is rejected altogether. And in the various grades of volunteers other considerations arise which are of great importance. In cases of emergency and in great patriotic crises, the majority of these volunteers would be drawn from the cultivated and the highly educated classes, and modern statistics show very clearly that in proportion to the intellectual power of a community so is the frequency of myopia; and if a strict limit were insisted upon for the vision of volunteers, the army and the country would be deprived of very much useful and intelligent assistance. The Germans understand this, and the consequence is that they are able to make a boast of the number of spectacles which are worn in their ranks. So evident is it that myopia is more frequent in schools than elsewhere, that a very large proportion of their officers and the educated men within the ranks wear glasses of some kind, and 'no one,' says Dr. Giraud-Teulon, 'can doubt their intelligence or their efficiency.' Accordingly, he insists strongly that France should not deprive her army of such an intellectual contingent by any arbitrary rules as to the amount of vision.

The instructions to the medical boards are to the effect that recruits suffering from myopia $\frac{1}{4}$, or from amblyopia, so that their visual acuteness is diminished to one-fourth, are altogether ineligible; and Dr. Giraud-Teulon proceeds to show that such rules are inexact and unscientific, inasmuch as it can be proved that loss of vision is not by any means in proportion to the degree of the error in refraction. In order to investigate such cases satisfactorily, so as to eliminate fraud and to come to any reliable conclusion, it is essential that much more time should be devoted to the examination of a recruit than can be given under the present arrangements, and it is absolutely necessary that there should be attached to each board of inquiry an additional member who should also be a skilled ophthalmoscopist. Dr. Giraud-Teulon divides his remarks under two headings, the first have reference to the defects of vision owing to errors in the refraction, and the second to the consideration of all the varieties of amblyopia; and as regards these he insists that the present method of examination by test-types, etc., is unsatisfactory, unless it be supported by an examination with the ophthalmoscope. The use of this should be compulsory, and not, as at present, merely allowable.

ARLT ON THE ORIGIN AND TREATMENT OF PURULENT OPHTHALMIA.—In the *Wiener Medizinische Zeitung*, May 25, Professor Arlt brings to an end a series of papers upon purulent ophthalmia, and in a short *résumé* thus sums up the conclusions at which he has arrived. Although purulent ophthalmia very commonly appears amongst the members of communities, yet it not unfrequently attacks the eyes of individuals amongst the poorer and lower classes, who are already suffering from any of the milder forms of ophthalmia; it matters little what the nature of this may be, whether it be granular or trachomatous, or any other variety of the inflammation; it may appear after a long or a short interval, and it may lead to rapid destruction of the eyesight by invading the cornea, or to its slow and gradual extinction by causing trichiasis and entropion. In

many cases minute greyish bodies may be seen on the under surface of the upper lid, and especially in the mucous membrane above the lid. The ophthalmia is generally acute if it be caused by inoculation from the genital organs, but it is usually chronic when it spreads from eye to eye, or when it is brought about by exposure to draught. The activity of the contagious matter depends much upon the concentration of the material, and upon the length of time during which the conjunctiva is exposed to its influence; its power is favoured by heat and retarded by cold. The occurrence of one single case within a community may lead to the appearance of an epidemic, the contagion being conveyed as much by the air as by all kinds of instruments and utensils, more especially when the weather is warm and moist. It appears that the disease may have its origin in atmospheric influences alone, such, for instance, as sudden changes of the weather, and if the air be charged with dust or smoke. According to Professor Arlt, it is not certain that purulent ophthalmia is more rife amongst military than in civil communities, nor does it appear to him conclusively shown that the disease had its origin in Egypt, inasmuch as Egypt was esteemed by the Greeks and Romans as a very healthy country, and the assertion that Cyrus applied to Egypt for the aid of physicians does not prove more than that the Egyptians in those days were a cultivated people, and were in a position to afford the assistance which was asked. There is no reason to suppose that there is any change of structure in the eyes of scrofulous subjects which should render them especially liable to the disease.

In conclusion, as regards treatment, Professor Arlt is quite at a loss how to suggest any safeguards against the disease; for, although we look upon it as contagious, we cannot isolate all or any who have been exposed to it, and it very frequently happens that those who have been exposed are utterly unaware of the fact, and but too often unwilling to submit to any treatment until the disease is far advanced, and according to our present knowledge it would be quite impossible for medical men to examine the eyes of all of those under their care and who may in any way have exposed themselves, or whose eyes may at any time become attacked.

DEZANNEAU ON IRIDECTOMY AS AN AID TO THE EXTRACTION OF CATARACT.—The *Bulletin Général de Thérapeutique* (May 15 and 30) contains an elaborate analysis of one hundred and fourteen operations for extraction performed by Dr. Dezanneau, from the results of which he draws certain practical conclusions as to the value of iridectomy as an adjunct to operations for the removal of cataract. In every instance the pupils were dilated with atropia, on the ground that not only was the iridectomy rendered easier, but the removal of the lens was thereby facilitated. With the exception of one case, and this a cause of regret to Dr. Dezanneau, no anaesthetics were employed. The eyelids were separated by means of a common retractor, and the fixing forceps was only made use of during the section of the cornea, the excision of the iris being accomplished without any other aid than that of the retractor. The excision was always made upwards, and very freely. The section of the cornea which Dr. Dezanneau performed in all his cases, and which he strongly advocates, is a section exactly at the sclero-corneal junction, so as to make a flap which shall embrace about the upper-third of the

cornea, and exactly parallel to the plane of the iris. This section is all the better if there be a small conjunctival flap also. At the third stage of the operation, most scrupulous care is taken to remove all *débris* of lenticular matter, but without using instruments within the eye. This is brought about by gentle friction and manipulation. Subsequently to the operation the patients were confined to bed for one day, and a compressive bandage was employed for one week; the eyes were not examined at all until the fourth or fifth day. As the result of one hundred and fourteen operations, complete success followed in eighty-eight, in seventeen there was but a partial success, and in nine the vision was not improved; in no single instance was the eye lost. By complete success is meant the ability to read ordinary type for any length of time, with the aid of proper glasses; and by incomplete success is meant the power of seeing all large objects, but without the power to read or write. As regards the value of iridectomy, Dr. Dezanneau considers that it does not render the operation more dangerous by causing hæmorrhage into the anterior chamber, or by facilitating any loss of vitreous humour; nor does it favour the formation of secondary cataracts, with all of which faults it has been reproached. On the other hand, an iridectomy appears to ward off, or at least to modify exceedingly, any subsequent inflammation. If the excision of the iris be complete and cleanly done, it is not the cause of imperfect healing of the corneal wound; and the results of extractions in which it has been performed are in no way inferior to those obtained by the old method. To use Dr. Dezanneau's words, 'Iridectomy adds no serious difficulty to the operation for extraction; on the contrary, it facilitates the removal of lenticular matter in many instances, and without it some cataracts could not be removed at all; while it almost certainly protects the eye from grave inflammatory troubles which would otherwise compromise the result of the operation.'

BOWATER J. VERNON.

RECENT PAPERS.

- The Ophthalmoscope as a Cerebroscope. By Dr. Bull. (*New York Medical Record*, June 12.)
 On the Ophthalmoscopic Diagnosis of Astigmatism. By M. Beauvais. (*Lyon Médical*, June 27.)
 The Ciliary Muscle. By MM. Warlomont and Huel. (*Annales d'Oculistique*, May and June, 1875.)
 On Syphilitic Iritis. By M. Drogat-Landree. (*Ibid.*)

REPORTS OF FOREIGN SOCIETIES.

ACADEMY OF MEDICINE IN PARIS.

June 22. *Cholera*.—A discussion on cholera, which had been opened in the Academy, was resumed. M. Tholozan said that the question now raised, however it might be settled, must throw some light on the origin of cholera. Facts were grouped to gain ideas; the mass of facts on the etiology of cholera was misread; for it was still disputed what a cholera epidemic was; how many had occurred in Europe; what was a primary and what a secondary epidemic. It was thought, before his enquiries were published, that Asiatic cholera could not reproduce itself in Europe, and that we must trace even secondary outbreaks to India. He did not find one of the last five cholera

epidemics coming direct from India. Two sprang up in Europe, two in Persia, and one in Arabia. It was useless to say that these epidemics were not primary, but were derived from India, for on tracing the history of every modern epidemic in India there was no such thing to be met with there as a primary epidemic; all were secondary, all derived from pre-existing sources. How cholera arose in India was still questioned. Was it engendered *ab ovo* in every new epidemic; or did these terrible events result from germs left from a preceding epidemic? Cholera, like plague, yellow fever, small-pox, scarlatina, and measles, had the fatal power of contagion, and of becoming epidemic. No one now maintained that measles, scarlatina, or small-pox were produced by vicissitudes of climate, by errors of digestion, or the causes we call common; an infecting particle was necessary to cause them. We must admit a specific germ of the same kind for cholera also, or reverse all the laws of pathology. Could cholera depend on a specific cause out of India and there be the product of common causes only? Because this disease originated in India long since, it was supposed to be continually arising there *de novo*. It was an error to suppose that cholera commonly arose in India. In India the germs of cholera had never been absent from the times of remote history; they were roused into activity after longer or shorter periods of dormancy, just as occurred with the ordinary zymotics in Europe. In India the germ of cholera was sometimes sterile; it might be fertile in places out of India, and set up centres of diffusion as powerful as any watered by the Ganges. This variation of epidemic intensity was as necessary as is the fact of contagion to explain the spread of measles and scarlatina as well as of cholera. Dr. Cunningham's recent reports showed the disadvantages of restrictive measures in India. Cholera was already endemic in parts of Russia; yet barriers found useless in the West were again to be enforced in the East, at least, if some conclusions of the late Sanitary Conference at Vienna were to be literally observed. The doctrine of contagion followed too exclusively led to narrow views, and shut out facts which it could not explain. This doctrine must be enlarged so as to combine with the germ theory the idea of epidemic influence to explain all the phenomena. These two ideas probably corresponded to a single fact or to one series of phenomena proceeding from the same source; the essence of these pathogenic facts was hidden, and could not therefore be comprehended in a single conception.

June 29. *Cholera*.—The discussion on cholera was continued by M. Briquet. He warmly acknowledged the value of Dr. Tholozan's contributions to the history of plague and cholera, specially of the facts which his official position in Persia had enabled him to gather on the etiology of cholera in India which supplied some of the keenest wants of science. He was surprised at much that M. Tholozan had said, and would adduce facts to show that India was the birth-place of cholera, that it had existed there from time immemorial, and that before 1817 it was unknown elsewhere. He doubted if it were possible to originate epidemic cholera in temperate climates, or that our summer cholera could ever be transformed into an epidemic as M. Guérin supposed. Vanderhayden told us that in 1645 cholera appeared in Holland when that country was in relation with the Moluccas, but it did not spread. The extension of commerce after the peace of 1814 brought it from

India. He believed each epidemic in India to arise *de novo* and not, as Dr. Tholozan maintained, to result from germs left by a previous epidemic; yet he admitted that cholera was always present in India in the sporadic form. If the conditions which would give rise to cholera existed nowhere but in India, it followed that any epidemic must be derived thence. There were direct proofs that the epidemics of 1819, 1830, and 1846 started from India; so far all authorities concurred. M. Briquet had elsewhere shown how local outbreaks, with winter pause and summer recrudescence had followed the epidemics of 1830 and 1846: M. Fauvel had done the same for the epidemics since 1850. It was not known how long an epidemic might retain its activity, so that it was necessary to guard against the possibility of fertile germs still lingering; but we must not neglect the ordinary channels of importation; these, since the close approximation of Russia to India, were no longer chiefly identified with ocean traffic. The highway by Russia was now as dangerous as was that by England.

REVIEWS.

Physiological Diagrams, containing 240 Coloured Figures, Illustrative of a Description of the Human Body, its Structure and Functions, designed for the Use of Teachers and Schools and Young Men destined for the Medical Profession, and for Popular Instruction generally. By JOHN MARSHALL, F.R.S., F.R.C.S. Third Edition. Revised and enlarged. London: Smith, Elder & Co. 1875.

The title of the above work, though somewhat a long one, is necessary to show fully the object and scope of the work itself. The high excellence and minute exactitude with which Mr. Marshall's large diagrams were executed, rendered such a work as the one under notice indispensable to the private student, and to those who had neither the means nor the convenience necessary for the study of life-sized diagrams. To meet this want, the illustrations in this set of drawings have been made on a scale of one-sixth of the original size, so as to bring them within the compass of a handy book of reference. We can speak in high terms not only of the excellent manner in which the task has been accomplished in an anatomical point of view, but also to the high artistic merits of the work, which is as valuable to the student of art as it is to the student of anatomy. The price also brings these life-like studies within the reach of many who could not otherwise have the benefit of Mr. Marshall's *magnum opus*.

The reduced work contains many plates which are not in the original, whilst the scientific descriptive portion of the work has been brought up so as to include the most recent discoveries in the anatomy of the human frame; and, as all the plates have been re-engraved, all the distinctness of outline which is essential to the illustration of the human body has been secured. The work, being intended for the art as well as the medical student, contains only those parts of the anatomy which can be placed on the drawing-room table in the most mixed society without fear or reproach. We can cordially recommend this edition of Mr. Marshall's *Physiological Diagrams* not only to the medical student and artist, but also to the general public.

On Paralysis from Brain-Disease in its Common Forms. By H. CHARLTON BASTIAN, M.A., M.D., F.R.S. Pp. 335. Woodcuts. Macmillan: 1875.

This volume is a revised and enlarged reprint of lectures published in the *Lancet* last year. It is a readable and instructive monograph on the somewhat restricted subject of hemiplegia. The various causes of this form of palsy are first enumerated, with due reference to the blood-supply of the several parts of the brain, illustrated by the figures of Ecker and Duret. A remarkable case of hemiplegia due to hysteria is given at length in this chapter. The phenomena of the apoplectic state are then discussed, together with the various changes in the condition of the affected muscles, in the power of speech, and in other functions which are its sequelæ. The subject of aphasia, as one might expect, is particularly well treated. Dr. Bastian adheres to his suggestion of restricting this term to loss of power both of speaking and of writing, using the words 'aphemia' and 'agraphia' to denote one of these defects without the other. Perhaps the most interesting chapter of the book is that on regional diagnosis in disease of the brain. The symptoms which point out lesion of the pons, the crura cerebri, the thalamus, and the corpus striatum respectively, are carefully analysed, and then the scarcely less difficult symptoms which denote hæmorrhage into the ventricular cavity, lesions of the hemispheres, and, lastly, of the cerebellum. Then follow some practical remarks on prognosis in apoplexy and hemiplegia, and a few words on treatment complete the volume. The woodcuts, taken from Marshall, Turner, and Ecker and Duret, serve to illustrate the anatomy of the brain. The only improvement we would suggest in a second edition is compression.

MISCELLANY.

THE Committee of the French Association for the Advancement of Science, which meets at Nantes on August 19, have issued a list of some of the French men of science expected to be present. Among the subjects which will be brought before the Association are 'Researches on Prussic Acid,' by M. Claude Bernard; an important paper by M. Pasteur on Beer; an account of the work relating to the meridian of France, by Commandant Perrier; and a new rhinoplastic process, by Dr. Ollier. Among those expected to be present are, MM. Dumas, Claude Bernard, Pasteur, H. St. Claire Deville, De Quatrefages, Levasseur, P. Broca, E. Caventou, L. Lefort, E. Moreau, Trélaud, Verneuil, and other eminent scientific Frenchmen.

LOCUSTS AS FOOD.—At the last meeting of the Entomological Society, Mr. Charles V. Riley, State Entomologist of Missouri, exhibited sundry insect pests that do so much damage in the State, including the army worm (*Leucania impuncta*), and the Rocky Mountain locust (*Caloptenus spretus*), and entered at some length into the habits of the latter insect, and the vast amount of destitution caused by it; stating that in a short period it devoured almost every living plant, leaving nothing but the leaves of the forest trees, and converting a fruitful country into an absolute desert. Having noticed that hogs and poultry grew excessively fat from devouring the locusts, and considering that the use of them as food for man would tend to relieve some of the distress occasioned in the devastated districts, he had caused a number of them to be prepared in various ways, and they were found to be well suited for food, especially in the form of soup.

BRITISH MEDICAL ASSOCIATION.—The fifty-third annual meeting of the British Medical Association was held in Edinburgh last week, under the presidency of Sir Robert Christison, Bart.; and was very largely attended by members from all parts of the kingdom. In addition to an interesting and highly instructive address from the president, on the University of Edinburgh and Medical Education, addresses were delivered, in Medicine, by Dr. Warburton Begbie; in Surgery, by Professor Spence; and in Physiology, by Professor Rutherford. Numerous papers were also read in the sections into which the meeting was divided, viz. Medicine, Surgery, Obstetric Medicine, Public Medicine, Physiology, and Psychology. The Presidents of Sections were: Medicine, Dr. R. Quain, F.R.S. (Dr. W. T. Gairdner, Vice-president, acting in his unavoidable absence); Surgery, Professor Lister; Obstetric Medicine, Dr. Matthews Duncan; Public Medicine, the Right Hon. Lyon Playfair, M.P.; Physiology, Dr. Burdon Sanderson, F.R.S.; Psychology, Dr. Lowe. Among other business, a committee was appointed to investigate the action of anæsthetics; and it was determined to take measures for promoting legislation for the restraint and cure of habitual drunkards. The meeting of the association in 1876 is to be held at Brighton.

SCIENCE IN ABERDEEN.—Professor Struthers has been delivering a gratuitous course of Saturday evening lectures on anatomy and physiology at Mareschal College. They have been very largely attended by both sexes, and particularly by that portion of the community, comprising all classes, whose opportunities for instruction in scientific subjects has been necessarily restricted. A beautifully illuminated and handsomely mounted address was recently presented to Dr. Struthers by the Dean of Guild of the city on behalf of a large number of subscribers, as a mark of their appreciation of his disinterested labours. The Aberdeen School Board had been stimulated to resolve to introduce some physical science into the Grammar School. They propose to have a course of elementary chemistry and elementary physics, and also one of botany. The Mechanics' Institution of Aberdeen, now aided by a munificent bequest from the late Dr. Neil Arnott, himself an Aberdonian, is also doing valuable work in the way of disseminating systematic knowledge in various branches of physical science.

ABORTION IN AMERICA.—In an article in the *Canada Lancet*, June 1, Dr. A. A. Andrews sums up as follows. The crime of feticide is fearfully prevalent, and rapidly increasing, and corrupting and debasing the country both morally and physically. It is worse than typhus or small-pox. How are we to restrain it? We cannot attack it in the public press; delicacy forbids that. Our assaults in the medical press would not reach those who need the instruction and warning. The pulpit is out of the question. Where is the clergyman who would dare preach a sermon upon the text, 'Thou shalt do no murder,' and make special, distinct, intelligible application of his text to this species of murder? I had for many years noted and wondered at the fact, that of the married women who sought my co-operation nearly all were Protestants. Being myself a Protestant, and not ready to acknowledge any marked moral inferiority in my co-religionists, I was for a long season puzzled, but I think the solution is this. The pulpit is debarred; but the Roman Catholic priesthood have in their confessional an opportunity of instructing and warning their flock. Protestant women do not go there, but we, and we only, have the private confidential ear of the whole sex, and it is, I conceive, our duty to lose no opportunity of diffusing the information we possess in this regard. Let us purify the moral atmosphere. Let us make the whole sex know that it is murder, when the embryo is but four weeks old, as completely as if the nine months of foetal life had been reached or passed. We have a duty to perform, and we have countless opportunities of doing it.

THE HÔTEL-DIEU OF PARIS IN THE OLD TIMES.—M. Maxime du Camp's elaborate work on *Paris, ses Organes, ses Fonctions, sa Vie*, just completed, contains a striking description of the state of the Hôtel-Dieu hospital in the time of the Grand Monarque, Louis XIV. It seems that the institution contained 2,800 patients, heaped in fours, fives, and even sixes on the same bedstead, in wards where the wet linen was hung to dry. When, in 1785, the delegates appointed by the Academy of Sciences, with which Louis XVI. had taken counsel on the subject, visited the former leper hospital, they found 3,418 patients in 1,219 beds, some even being placed on the testers of the beds. The wounded in war, fever patients, those who had undergone operations, women in child-bed, maniacs, patients labouring under loathsome skin-diseases, small-pox cases, and consumptive patients, all massed together in the most abominable confusion, died side by side on the same pallet. The dead were allowed to remain for hours by the side of the dying; operations were performed in the general ward, on the bed used in common with other patients; and it is said that, when the coverlid thrown over all this living corruption was lifted up, a perceptible lye ran away. Louis XVI. was touched by this misery, and it was decided that the Hôtel-Dieu should be suppressed, and that four hospitals should be constructed, placed in the outskirts of the city, and amongst trees. Even the funds necessary for the execution of this project were forthcoming, but were used by the minister Loménie de Brienne to stave off some other pressing want, and the Hôtel-Dieu remained what it had always been—a charnel-house—until the Revolution.

THE PHENOMENA OF OLD AGE.—M. Chevreul, himself one of the oldest of the French academicians, being, we believe, in his seventy-fourth year, lately communicated to the Academy of Sciences his conclusions on this subject. He does not entirely share the opinion advanced by Professor Lordat, of Montpellier, that the intellect, the soul, the spirit, retains its faculties without ageing, consequently enjoying insenscence. M. Chevreul admits, in principle, that the intellectual faculties become weaker with age; but he does not allow that it is demonstrated by observation that the weakening of the intelligence should be in proportion with the visible weakening of any special organs; and he thinks that acquired knowledge, in the department of the sciences belonging to natural philosophy, far from being weakened by age, gains in generality and precision. A writer in the *Gazette des Hôpitaux* for July 6, commenting on these opinions of M. Chevreul, agrees with him that acquired knowledge gains generality with age. The brain of the old man is like the intelligence of the peoples of antiquity, who for the first time applied their attention to the totality of created things. The brain of the former and the intelligence of the latter are only impressed by general views; the one sees the details through a distant prism; the others do not yet know them. The precision claimed by M. Chevreul is more difficult to grant him, since he admits, amongst the discomforts of old age, weakening of the hearing, sight, muscular flexibility, etc. Amongst senile infirmities, M. Chevreul accords particular attention to forgetfulness of proper names. According to him this amnesia comes from the fact that the totality of the attributes which characterise a noun have not been sufficiently defined in the mind of the person who forgets. The amnesia of faces, which generally comes on after that of names, would be due to the weakening of the sight, which interferes with the recognition of the person spoken to. In order to correct this annoyance, M. Chevreul recommends that every opportunity of bringing together before one's eyes the two persons whose faces we confuse together should be taken, so as to look for a differential characteristic, in the same way as a naturalist does. This method of repairing the irreparable havoc of years is simple in its conception, but might sometimes be difficult of realisation.

The London Medical Record.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

A CASE OF TOTAL EXTIRPATION OF THE LARYNX WITH THE HYOID BONE, AND A PORTION OF THE TONGUE, PHARYNX, AND CESOPHAGUS. BY B. VON LANGENBECK, PROFESSOR IN THE UNIVERSITY OF BERLIN.*

Gentlemen,—The preparation which I beg to lay before you is worthy of attention on account of the unusual extent to which the cancerous degeneration has reached in the larynx and beyond it. It was necessary on this account to remove the whole larynx with the epiglottis, the hyoid bone, and the posterior third of the tongue, as well as the anterior and lateral portion of the pharynx with the pharyngo-palatine arch, and a small part of the cesophagus. I will give first a brief statement of the history of the disease.

A master smith named Krause, of Brandenburg, aged fifty-seven, was admitted into the hospital on November 29, 1874, with violent dyspnoea, threatening suffocation, attacks of cough attended with a whistling sound, and a cyanotic tint of the face. It was impossible to obtain the anamnestic circumstances of the disease from the patient himself; and we only learned that he had been a healthy and strong man up to about four years previously, when he suffered from hoarseness and difficulty of breathing, and that for some time he had been treated in Berlin by cauterisation of the larynx. Laryngoscopic examination, which was very much impeded by the difficult respiration, showed ulceration at the anterior commissure of the vocal cords and a defect of the left arytenoid cartilage. The evening temperature was 38.2 Cent. (100.76 Fahr.)

On November 30, tracheotomy was performed, under chloroform. The upper rings of the trachea were ossified, and were divided with difficulty; and after the trachea had been opened, the introduction of the cannula was hindered by incessant and long-continued paroxysms of cough. By these, a quantity of thin purulent sputa was expectorated, and the breathing was considerably relieved. Some infusion of ipecacuanha, with morphia, was given.

The tormenting paroxysms of cough, with abundant expectoration of purulent sputa and acute fever, continued until December 10. The fever then ceased, the sputa became mucous, and the operation wound healed, leaving at the end of December only the fistula in which the cannula lay.

An examination made at this time revealed distinct enlargement of the larynx, and tenderness on pressure. The lymphatic glands in the right inframaxillary region were swollen. Nothing abnormal could be detected on inspection of the mouth and

fauces; with the finger, the epiglottis was felt to be swollen. The laryngoscope showed a remarkable œdematous swelling of the epiglottis and of the ary-epiglottic ligaments, so great that it was impossible to obtain a view of the cavity of the larynx and of the rima glottidis.

Extirpation of the larynx was urgently recommended at this time; but the patient refused to submit to the operation, and left the hospital on January 11, 1875.

On July 1, Krause was re-admitted. Breathing had been carried on with perfect freedom through the tracheal tube; but lately there had been increasing difficulty of deglutition, so that the patient was now only able to take fluid food. The larynx, so far as could be ascertained by palpation, was swollen, widened, without distinct outline, and hard. On both sides of the neck, infiltrated inframaxillary glands could be felt.

On pressing down the tongue, a yellowish red nodulated mass was seen to project behind the root, which we were inclined to regard as the diseased epiglottis. Laryngoscopic examination was impossible, in consequence of the masses of mucus which filled the pharynx and completely closed the upper opening of the larynx. In this region the finger felt a ragged nodulated swelling, which prevented the finger from penetrating further into the pharynx. The patient's general condition and strength were satisfactory.

Extirpation of the larynx was performed on July 21. The patient having been narcotised by chloroform administered through the tracheal fistula, the cannula was removed, the opening in the trachea was enlarged downwards, and Trendelenburg's tampon-cannula was introduced and fixed into the trachea by pumping air into the India-rubber bag. Anæsthesia was kept up to the end of the operation by administering chloroform through a tube introduced into the cannula.

I performed the operation in the same way as I had devised in 1854 in a similar case, in which, however, operative procedure was finally abandoned.

A transverse incision was made through the skin, two centimetres (0.8 inch) above the hyoid bone, from the inner edge of one sterno-mastoid muscle to that of the other. From the centre of this incision, another was carried in the middle line, over the larynx, close down to the tracheal fistula, the upper cicatrix of which, however, was not divided. The skin was then turned back in two flaps, and the larynx (thyroid cartilage) was laid free. The infiltrated lymphatic glands, with the right submaxillary gland, were then extirpated; the mylo-hyoid, digastric, and hyo-glossus muscles were cut through above the hyoid bone, the lingual artery was exposed and tied; the glands were then removed on the left side, and the left lingual artery was tied. The operation was considerably impeded by the unusual shortness of the patient's neck, and by the fusion of the soft parts with the larynx, probably induced by the long retention of the cannula. The stripping off of the soft parts from the thyroid and cricoid cartilages could only be imperfectly accomplished; and the intention of dissecting off the pharynx and the upper end of the cesophagus from the larynx had to be abandoned, as the cancer had invaded the first-named of these parts.

It being then impossible to preserve the anterior wall of the pharynx and cesophagus, we proceeded to lay open the fauces. The larynx being drawn for-

* Read before the Medical Society of Berlin, July 28. *Berliner Klinische Wochenschrift*, August 16.)

wards and downwards by a sharp hook fixed in the hyoid bone, the point of the tongue was drawn out of the mouth by means of a thread passed through it, and the root of the tongue was cut through about four-fifths of an inch above the hyoid bone. The superior thyroid arteries were then tied, and the lateral wall of the pharynx cut through. Finally, the pharyngo-palatine arches, which were stretched forwards by the strong dragging of the larynx, were divided. The external carotid artery, which was drawn forward with the lateral wall of the pharynx, was then laid bare on each side, tied in two places, and cut through between the ligatures. The lingual and hypoglossal nerves were also exposed and divided.

The larynx now remained connected only with the trachea; and the latter was divided close below the cricoid cartilage, so as to leave the tampon-cannula in the tracheal fistula.

The anterior cervical region, from the chin nearly as far as the manubrium sterni, showed now a large opening, at the bottom of which the spinal column, covered by the posterior wall of the pharynx and œsophagus, lay exposed. The skin of the neck, which had been divided by the transverse incision, was turned over in two flaps, like a collar. The trachea sank downwards, so that the cannula lay close above the sternum. At the upper end of the wound were seen the velum palati and the broad wounded surface of the tongue. On inspection through the mouth, the anterior part of the tongue was seen to be quite pale; it had receded from the lower jaw, and was completely immovable.

The muscles divided and removed in the operation, besides the small laryngeal muscles, were the sterno-hyoid, sterno-thyroid, crico-hyoid, and mylo-hyoid, digastric, genio-hyoid, stylo-hyoid, and stylo-glossal; the stylo-pharyngei, glosso-pharyngei, and palato-pharyngei. Forty-one ligatures were applied to vessels, viz., to the external maxillary, lingual, superior thyroid, external carotid, and laryngeal arteries; and both hypoglossal and lingual nerves were divided. Along with the infiltrated lymphatic glands I had removed both submaxillary glands, fearing that these glands, which were apparently somewhat enlarged, might become diseased.

Notwithstanding the extent of the wound and the length of the operation, which lasted two hours, there was comparatively little exhaustion. The patient's appearance was good; pulse 80, full and strong; temperature 36.8° Cent. (98.25° Fahr.). I believe that this is mainly to be ascribed to the circumstance that complete chloroform-narcosis was steadily kept up by the help of the plug in the trachea from the beginning to the end of the operation; that we were able to completely prevent the flow of blood into the air-passages; and that, the operation being performed by careful anatomical dissection without any bruising or laceration of the parts, we were able to tie the great vessels before dividing them.

After the operation was completed, and the patient had awakened from the anæsthesia, some Hungarian wine was given to him through an œsophageal tube, the tampon-cannula was removed and an ordinary strong tracheal cannula substituted. In order to prevent the mucus, which was abundantly secreted by the remaining part of the fauces, from coming into contact with the cannula, a compress soaked in a solution (one-third per cent.) of salicylic acid was placed round the neck so as to cover the wound. I abstained from attempting to unite the wound in

the cervical integuments by sutures, fearing that the stretching of the parts would favour the burrowing of the secretions from the wound between the divided cervical fasciæ. The flaps of skin on the two sides of the neck were therefore simply laid down in place, and supported by the above-mentioned salicylised compress.

July 22. The patient had vomited twice since the preceding evening (after-effect of chloroform); in other respects his condition was good. Pulse, full and strong, 80; temperature, morning 38.6° Cent. (101.48° Fahr.); evening, 39.8° Cent. (103.64° Fahr.). He was fed three times daily through the œsophageal tube, and had nine eggs, milk, soup, and about a pint of Hungarian wine in the day.

July 23. There was abundant expectoration of thin mucus through the cannula. Temperature, morning, 38.6° Cent. (101.48° Fahr.); evening, 39.4° Cent. (102.92° Fahr.); pulse, 80.

July 25. The patient passed a good night. Since the preceding day there had been diarrhœa, for which fifteen drops of tincture of opium were ordered. The temperature and pulse were as on the 23rd. On account of fœtor, the cavity of the mouth was several times washed out with salicylised water. By means of a large sponge, which was pressed above the cannula against the posterior wall of the pharynx, overflow into the trachea was prevented, and the mouth and fauces were carefully wiped with a solution of salicylic and boracic acid.

July 26. There was still abundant purulent secretion; but respiration was perfectly free and quiet. Pulse full, strong, regular, 80. Evening temperature, 38.2° Cent. (100.76° Fahr.).

July 28. The patient's general condition remained good; he was free from fever.

In the preparation, the anterior wall of the œsophagus and pharynx is cut through, the larynx is cut away from behind, and the hyoid bone sawn through in the middle. The cancerous degeneration has so completely involved the upper division of the larynx, the epiglottis, and the hyoid bone, that it is difficult to recognise the individual parts. The inner surfaces of the cricoid and thyroid cartilages, as far as the laryngeal pouches and the inferior vocal cords, are free. The morbid change begins close above the laryngeal pouches, and, in the form of modulated masses, completely fills the whole upper part of the laryngeal cavity. The arytaenoid cartilages and the ary-epiglottic ligaments are completely lost in the tumour. The epiglottis is recognisable in a somewhat separate mass, in which some fragments of the œsophagus can still be recognised. The hyoid bone is surrounded by the swelling, which has grown upwards into the base of the tongue.

The anterior surfaces of the thyroid cartilage and the ring of the cricoid cartilage have remained quite free from disease. The tongue was divided in front of the papillæ circumvallatæ, and the cut surface shows healthy tissue. The removed larynx, hyoid bone, and tongue are about 4.4 inches long, of which 1.2 inches belong to the tongue.

You are aware, gentlemen, that after Czerny had demonstrated by experiments on dogs the possibility of extirpating the larynx (*Wiener Medizinische Wochenschrift*, nos. 27 and 28, 1870), the first extirpation of the larynx in man was performed by Billroth. On December 31, 1873, he removed the larynx from a schoolmaster, aged thirty-six, on account of diffuse epithelial cancer. A part of the two upper tracheal bags, and the whole of the cri-

coid, arytaenoid, and thyroid cartilages were removed, and a third of the base of the gullet was taken away. The œsophagus and pharynx, the anterior and greater part of the epiglottis, and the hyoid bone, were preserved. The patient was dismissed cured on March 2, 1874, able to speak intelligibly by means of an artificial larynx (Dr. C. Gussenbauer, in *Archiv für Klinische Chirurgie*, Band xvii. 1874).

The second operation, for partial extirpation, was performed by Heine, of Prague, in a case of stenosis of the larynx. How much of the larynx was removed I do not know; and in regard to this I must refer you to the forthcoming transactions of the fourth German Surgical Congress, held in April of the present year, at which the patient operated on by Heine was shown.

A third operation of this kind was performed on August 12, 1874, by Dr. Moritz Schmidt, of Frankfurt, who removed the cricoid, thyroid, and arytaenoid cartilages from a cattle-dealer, aged fifty-six, on account of carcinoma of the larynx, producing narrowing and symptoms of suffocation. The patient died of collapse on the fifth day after the operation.

With regard to the steps of the operation, I must inform you that Billroth and Schmidt made a longitudinal incision upwards from the hyoid bone, and removed the larynx by cutting through the trachea from below; while I made a T-shaped incision, freed the larynx from its connections above by careful dissection, and divided the trachea last of all. I would recommend my method also in cases where the larynx alone is to be removed, and the epiglottis, hyoid bone, and tongue, are to be preserved. By performing extirpation from above, it becomes possible to expose and tie the principal arteries before dividing them, so as to reduce the loss of blood to a minimum, and to prevent the escape of blood into the trachea, even when one operates without plugging the trachea, or when the plug is spoiled. I must, however, attach the greatest importance to the plugging of the trachea; and it is advisable always to have at hand several of Trendelenburg's tampon-cannulæ, in case that one or other of them should fail.

In order to be able to carry out the plugging as quickly as possible, it is advisable to perform the tracheotomy before proceeding to extirpate the larynx. Indeed, in most cases it will be possible to wait for the cicatrization of the tracheal fistula before proceeding to the principal operation. The advantage is gained by this, that the trachea, being united to the skin in the region of the fistula, does not sink downwards as is otherwise the case, and that the process of stitching the skin of the neck to the trachea may be omitted.

In the cases operated on by Heine and Billroth, an artificial larynx was fitted on soon after the operation. In my patient, the large traumatic cavity, extending far beyond the limit of the larynx, will render this impossible, and it will be necessary to wait for the cicatrization of the wound. How this will take place if the case continue to make favourable progress, and whether, in the perfectly immovable state of the remnant of the tongue, the power of swallowing may return, I am not able to foresee.

TWO CASES OF COMPLETE TRANSPOSITION OF THE VISCERA. BY DR. SCHEELLE, OF DANTZIG.*

CASE I. Total Transposition of the Viscera. Insufficiency and Narrowness of the Aortic Orifice, very probably Congenital. Thoracic Portion of Spine straight, not convex towards the left. Right-handedness.—Alfred G., aged four and a half, came under my care on December 28, 1871. The child's father, a ship captain, is a man in excellent health; the mother is an extremely blooming and powerful woman. His three sisters are vigorous and healthy. The grandparents are not alive. In no member of the family can the existence of an anomaly in the position of the viscera be ascertained. The mother is said to have enjoyed perfectly good health during her pregnancy. The boy himself was born four weeks before full time. At first he was very weakly and slender, but gradually filled out. At the age of a year and a half, it was stated, he suffered for some time from diarrhoea. In the winter of 1870-71 he had 'catarrhal fever,' but during the summer of 1871 was cheerful and healthy. His mother frequently noticed that he was 'quite out of breath' after active playing and making much noise. His parents did not notice that the boy ever used the left hand by preference in eating, playing, throwing, or striking. There was nothing remarkable in his mental development, but he was said to be very easily irritated, and to then become at once very short-breathed.

On December 26 he was attacked with vomiting, and pain in the head and belly, to which diarrhoea was soon added; these symptoms were ascribed to indigestion, in consequence of a Christmas feast. The touch could detect no increased heat; the pulse was much quickened, the tongue moderately coated.

In the beginning of January a rather violent cough set in, occurring in paroxysms, being especially frequent in the evening and night, and giving the child much uneasiness. During the paroxysms, a profuse cold sweat broke out on the forehead and face, and the child became very short-breathed. This led the parents to send for me, and induced me to make a careful examination of the child.

The examination revealed a complete inversion of the viscera, with rather considerable narrowing and insufficiency of the aortic valves. The gastro-intestinal catarrh had probably produced much disturbance of the compensation power of the heart. When the child had recovered under treatment, I made the following note of his condition.

February 6, 1872.—The child is of slender build, well nourished. The expression of his countenance is anxious. The face is pale; the mucous membranes, as far as they can be seen, are pale and cyanosed. There is no cyanosis of the hands and feet; no cedema. The temperature is not raised (96°-8° Fahr.); the pulse is frequent (118-120) moderately full. The pulse-wave is high, almost jerking; tension rather considerable. The carotids in the neck throb much, and there is a distinct thrill in them.

In the chest, a strong pulsation is at once felt on the right side. At the same time, the regal third, fourth, and fifth costal cartilages, and the base of the sternum show a marked bulging forwards. The

* *Berliner Klinische Wochenschrift*, July 12 and 19, 1875.

pulsation extends from the third to the sixth intercostal space. In the sixth intercostal space, 1½ centimètre outside the right nipple-line, the apex of the heart is distinctly felt. The hand laid in the bulging portion of the chest is rather forcibly raised, especially in the direction of the apex of the heart, to the right, outwards, and downwards. The impulse of the apex is high, moderately extensive, rather resistant. *Fremissement* cannot be perceived. To the left of the sternum, pulsation can neither be seen nor felt in the cardiac region. On pressing with the points of the fingers in the jugulum, the arch of the aorta is distinctly felt. It cannot be followed towards the right, but can be traced towards the left beneath the origin of the sterno-cleido-mastoid (innominate artery).

The percussion-sound above and below the clavicles on both sides, is full and moderately clear. On the right side, dullness begins in the second intercostal space; it is intense over the third rib, at a point corresponding to the commencement of pulsation; extends in the third and fourth intercostal spaces, on the right, towards the nipple-line; and passes about two centimètres beyond this in the sixth intercostal space. At the seventh rib, in the nipple-line, the dullness is bordered by a loud, deep, tympanic, pulmonic sound. The dullness extends to the left as far as the sternum, and passes a centimètre beyond the left border of this bone. On the left side, there is a loud clear percussion-sound in the cardiac region. On tracing out the limits of the dullness on the right side, it assumes the form of a triangle, the apex of which lies in the sixth intercostal space outside the nipple-line, and the base is formed by a line drawn a centimètre outside the border of the sternum, from the sixth costal cartilage to the junction of the third costal cartilage with the sternum. On the left side of the thorax, slight dullness begins in the parasternal line at the fifth, and becomes more intense at the sixth rib. Its limit can be followed in a tolerably straight line towards the left. Intense dullness in the parasternal line reaches four centimètres, and in the nipple-line two centimètres, beyond the free border of the ribs, and ends in the axillary line at the edge of the ribs. Towards the right, the dullness extends 0·8 beyond the sternum, and passes upwards, without having any defined limit, into the cardiac dullness described above. The outline of dullness, when marked out, represents the form of a very extensive liver-dullness, the greatest vertical diameter, corresponding to the great lobe, lying in the left hypochondrium. This relation of parts can be distinctly confirmed by palpation. The whole of the free border of the liver is felt, slightly rounded, and gradually lessening towards the right hypochondrium. *Fremitus* is distinctly perceived over the dullness, so far as the lungs extend.

On the right side of the chest, below the region of the heart's apex, at the seventh rib, the percussion-sound of the stomach commences. It extends to the right along the last costal cartilages, and passes downwards into the intestinal sound. With great care, a semilunar space can be distinctly marked out by percussion.

Below the right axilla, at the ninth rib, the pulmonic sound passes into a moderately intense dullness, which, from its being bounded by the course of the ninth rib, and in front by a line drawn from the right sterno-clavicular articulation to the point of the eleventh rib, is recognised as splenic dullness.

The free edge of the spleen cannot be felt during deep inspiration.

At the apex of the heart, in the sixth intercostal space on the right side, along with the systolic sound, a systolic murmur and a diastolic sound are heard. At the juncture of the third rib with the right border of the sternum are heard a systolic sound, a weaker systolic murmur, and a diastolic sound with a prolonged loud diastolic murmur.

In the second left intercostal space (region of the aorta) the same is heard; but here the systolic murmur exceeds the diastolic in intensity. In the second right intercostal space (pulmonary artery) the murmurs are much weaker; the diastolic sound is fairly loud. At the base of the sternum are heard a systolic sound with a short systolic murmur, and a diastolic sound with a prolonged diastolic murmur. In the region of the carotids, a loud systolic murmur is heard, but nothing during the diastole.

Over the brachial artery at the bend of the elbow and over the femoral artery, arterial murmurs are heard. Behind, the systolic murmur is heard distinctly along the right of the spinal column so far as the lumbar vertebræ; the diastolic murmur is here much less distinct than in front. To the left of the spinal column, the systolic murmur is almost lost. No difference can be felt as regards the time and quality of the pulse-wave, between the radial and crural arteries (an examination with the sphygmograph and cardiograph was made; but, as the instruments were defective, the result is omitted). There was no evidence of abnormal dilatation and pulsation of the intercostal, internal mammary, epigastric, and other arteries.

In other parts of the chest, there is no anomalous dullness. In the dependent parts of the lungs posteriorly, on both sides, moderately abundant moist râles of medium fineness are heard. The breath-sound everywhere is sharp and puerile.

There is moderately intense dullness in the right hypogastric region. (Later experiments with enemata led to the conclusion that the sigmoid flexure and the rectum lay in the right hypogastric region).

The scrotum is wrinkled; the right half of the scrotum appears the more voluminous; the right testicle is a little larger than the left.

The spinal column is quite straight, and shows no lateral deviation in the interscapular space. The circumference of the left half of the chest, however, is less than that of the right, the former being 10·6, the latter 11·8 inches.

The boy is right-handed; he always uses the right hand in eating, striking, etc. Both extremities are more powerfully developed on the right side than on the left.

From the preceding details of the physical examination, a complete transposition of the viscera in general can be easily diagnosed. Not only does the heart lie in the right half of the chest, but the great vascular trunks are also transposed. The innominate artery can be felt behind the left sterno-clavicular articulation. Both palpation and percussion give evidence of heterotaxis of the organs lying below the diaphragm. From analogy, and from comparison with other previous observations, it may be assumed the heart is transposed in all its parts, and that the pulmonary artery is to be sought on the second intercostal space on the right side.

It further appears from the increased area of cardiac dullness, the dullness at the base of the sternum, and the increased diastolic sound over the

pulmonary artery, that not only the aortic ventricle, but the whole heart, is in a state of excentric hypertrophy.

Finally, the existence of an affection of the valves of the heart is proved by the existence of murmurs audible over the orifices. The accurate determination of these is very difficult, especially as, in cases of anomaly of position, unexpected irregularities in the septum and valves frequently occur, and hence the significance of auscultatory signs is much obscured. In the mean time, I think, there are sufficient grounds to justify me in assuming the existence of narrowing and insufficiency of the aortic valves, viz:—

1. The hypertrophy of the systemic division of the heart. The direction of the increased impulse follows the apex, which is displaced downwards and outwards, and the apex beat is resistant and high.

2. The systolic and diastolic murmur, which is heard in greatest intensity over the aortic semilunar valves, *i.e.*, at the sternal end of the third right rib.

3. The condition of the carotids, the throbbing and thrill, and the absence of diastolic sound in them.

4. The propagations of the systolic murmur into the carotids.

5. The condition of the peripheral arteries.

The sum of these physical phenomena places the diagnosis beyond a doubt. I had also the opportunity of showing the case to Professors Leyden (of Strassburg) and Baum (of Göttingen), as well as to several colleagues of this and other places. It seems, however, incumbent on me, as I am not able to adduce the result of a *post mortem* examination, to give still more accurate grounds for diagnosis *per exclusionem*.

There are only a relatively small number of cases of congenital malformation of the heart, which, latent for a long time, come accidentally under the notice of the practitioner. Among these are,

1. Permanence of the foramen ovale—defect of the septum of the ventricles.

2. Narrowing of the aorta at the insertion point of the ductus Botalli.

3. Narrowing of the orifice of the pulmonary artery.

Almost all other cases are rarely viable, on account of the greater malformations and defects, or come at once under notice in consequence of the presence of symptoms of severe disturbance of the circulation.

1. Permanence of the foramen ovale is not only a rather frequent occurrence in a normally placed heart, but has been noticed in several cases of transposition of the viscera (B. Schultze, Valleix, and Schrötter). If this arrest of development produce general symptoms, these are always the phenomena of cyanosis in its highest grade (*morbus cæruleus*). Far more often, this occurs with simultaneous defect in the ventricular septum (Boyer, De Bary, Martin Breschet, Virchow). In Virchow's case there was also general dropsy. The auscultatory phenomena in open foramen ovale, when they exist, are, as a rule, exquisite systolic murmurs (B. Schultze, Wolfshofer, Schrötter). The murmurs, however, are not propagated into the carotids, and are not capable of causing the diastolic sound to be lost. I find, however, no record of a diastolic murmur in the cardiac region.

2. The auscultatory phenomena in this case, their wide extent, and their propagation into the carotids,

might indeed be explained by a congenital narrowing of the aorta at the isthmus, complicated with relative insufficiency of the aortic valves. But then there is an absence of the collateral dilatation of the intercostal, internal mammary, epigastric and other arteries, so characteristic of this form. Further, there is an absence of the difference between the systemic arteries above and below the narrowed part in relation to breadth, synchronism, and the form of the pulse-wave, such as I have seen and described in a case in Leyden's clinic.

3. Narrowing of the pulmonary artery must be excluded, since it exerts no influence on the occurrence of the phenomena in the systemic arteries. Besides, in affections of the pulmonary artery, murmurs are not propagated to the carotids; and, finally, there is in them no ground for absence of the diastolic sound.

The condition of the systemic arteries unmistakably indicates an affection of the aortic valves—namely, insufficiency. The diagnosis of insufficiency and narrowing of the aortic orifice is then decisive, as the explanation of all the symptoms.

One question yet remains to be answered. Is this affection of the valves congenital?

There is a preponderance of reasons for believing that it is so. There is no record of the child having suffered from endocarditis. In the winter of 1870-71, it is said, he suffered from 'catarrhal fever;' but, although he has been confined to bed for a long time, cyanosis, oedema, etc., have not been observed. In the earliest years, congenital malformations of the heart, compatible with life, produce relatively little trouble, while the presence of endocarditis can scarcely be overlooked, on account of the pain and disturbance of function. The practitioner who previously treated him, on being questioned by me, could not remember that the child had had any disease of the kind.

The assumption that the defect is congenital, is further supported by the circumstance that in transposition of the viscera there is, if we may use the expression, a certain predisposition to malformations of the heart. Anomalies of this kind have been observed in nine out of above 100 cases recorded by various observers. In eight the foramen ovale and septum ventriculorum, in one the pulmonary orifice, were implicated. The aortic orifice has hitherto not been found diseased in transposition of the viscera; and congenital abnormality of this part is very rare. And this was indeed the only ground which opposed the assumption of the congenital condition in my case. The great probability of the above-mentioned presumption, however, cannot be denied.

CASE II.—*Complete Transposition of the Viscera; Incipient Cirrhosis of the Liver; Deviation of the Spinal Column to the Left in the Intrascapular Region; Right-handedness.*—The subject is S., a master painter, aged thirty-four. His parents are alive and healthy. Neither in them nor in the man's three children, who are alive and healthy, is there any anomaly in the position of the internal organs; and his mother does not remember any disturbance during her pregnancy. When young, he suffered many times from intermittent fever; and he acknowledges that he has been addicted to drink. For three years he has suffered from a more and more increasing difficulty of digestion, a sense of fulness in the epigastrium, constipation, and occasional

vomiting, especially after eating fat and hard food. In the summer of 1873, he had a severe attack of hæmatemesis. After that time he remained pretty well, especially after the use of Carlsbad waters. His bowels are generally constipated. He has lately complained of occasional pain in the neck, and hoarseness. He has a little cough and expectoration. He denies having fever or night-sweats, or that he has become thinner.

November 9, 1873.—He is a small feebly built man, with a pale countenance; the mucous membranes, as far as they can be seen, are pale; he is free from fever, but complains of a sensation of pressure in the epigastrium after taking solid food, constipation, and dryness of the throat, with hoarseness. His muscles are scanty and flabby; the panniculus adiposus is moderately developed. His neck is thin and long; neither the sight nor touch can detect any anomaly in it. His voice is deep—rather rough. He has intense pharyngitis granulosa. The chest is narrow, relatively short, slightly distended at the lower part; the range of motion is small. The right half measures 43 centimètres, the left 41. The respiration is costo-abdominal. There is no dyspnoea. The pulse is regular, of moderate fullness.

The epigastric region and the left hypochondrium are much distended, and a strong resistance is here felt. Palpation detects an even smooth tumour occupying the whole of the left hypochondrium, and extending to the left, without defined limits, into the splenic region. Towards the right it is sharply defined, and ceases about 0·8 inch outside the right upper line. On tracing out the tumour by palpation in the epigastrium and left hypochondrium, the form of an inverted liver is presented. Percussion shows this condition still more accurately. There is intense dullness over the whole "semilunar space." The dullness extends in the left anterior and lateral thoracic wall, nearly a handbreadth beyond the free edge of the ribs.

A close examination of the chest gives the following results. In the fifth right ulcerated space, in the region of the nipple, pulsation is scarcely visible, but is distinctly felt. On the left side, the apex-beat is absent. The pulsation on the right is easily recognised as the apex-beat of the heart, transposed to the right. Corresponding with this, percussion on the left side shows absence of cardiac dullness, while this is perceived, on the right, from the fourth rib in the right parasternal line. The cardiac dullness on the right does not reach to the left beyond the right sternal line, and passes downwards into the dullness of the smaller lobe of the liver, which is swollen. At the point of the apex-beat, in the fifth right intercostal space, two clear distinctly accentuated heart-sounds are heard. On the left, in the cardiac region, the heart-sounds are much more feeble, being evidently transmitted. There is a clear sound over the second intercostal space on both sides. The innominate artery cannot be felt.

In the left lateral wall of the chest, percussion detects an enlarged spleen with the greatest distinctness. On deep inspiration, the sharp edge of the spleen can be felt quite plainly.

The right hypochondrium is occupied by the stomach, and gives a loud, deep, tympanic stomach-sound.

Behind, there is a disposition to projection of the scapulae. In the intrascapular space, the spinal column shows a distinct curve, with the convexity towards the left.

Physical examination of the lungs detects no evident disease of these organs. The fremitus is somewhat more distinct posteriorly and laterally on the left side than on the right.

Percussion of the abdomen shows that the sigmoid flexure and the rectum lie to the right side; at least, there is intense dullness in the ileo-cæcal region.

The right half of the body is more powerfully developed than the left. This is consonant with the fact that the man has always used the right hand in his occupation.

The diagnosis in this case of complete transposition of the viscera is not difficult. The enlargement of the liver, and the splenic tumour, taken in conjunction with abundant hæmatemesis, leaves no doubt, although ascites and icterus are absent, that the assumption of chronic interstitial hepatitis is correct. I had an opportunity of showing the man to my friend Dr. Kohts of Strassburg, and to other medical men in this place; and the correctness of the diagnosis was confirmed by all. In the first case, the existence of the irregularity of structure was more accurately confirmed by the presence of the abnormal pulsation in the right half of the chest; and in the second, by the presence of the greatly enlarged liver in the left hypochondrium.

Medical literature is not deficient in cases of transposition. The first comprehensive collection was given by Wenzel Grüber in 1865, in Dubois-Reymond and Reichert's *Archiv*. He collated seventy-nine cases from literature, and assumes that there were still other cases which were not accessible to him, so that the total number would be about 100. Grüber indicates accurately the sources of his information. Since Grüber wrote, the cases have been made known by the following authors.

Scharlau (*Monatsschrift für Geburtskunde*, October, 1866). Preparation of a new born child.

Duroziez (*Gazette des Hôpitaux*, 1866, no. 190).

Isambert (*Gazette Médicale de Paris*, 1867, no. 7).

Hutchinson (*American Journal of Medical Sciences*, July, 1868). A man aged twenty-eight.

Pye-Smith (*Medical Anatomy, or illustration of the Relative Position and Movements of the Internal Organs*).

Bailey (*Transactions of the Obstetrical Society*, 1869).

Powell (*British Medical Journal*, vol. i. p. 349).

Valerani (*Annali Universali di Medicina*, February, 1869).

Triplett (*Boston Medical and Surgical Journal*, August, 1870).

Burgess (*St. Louis Medical and Surgical Journal*, November, 1870).

Hickman (*Transactions of Pathological Society of London*, vol. xx., 1870). Two cases: one, a boy six weeks old; the other, a woman aged twenty-eight, with endocarditic deposits on the mitral and aortic valves.

Schrötter (*Oesterreich. Medicin. Jahrbücher*, vol. xx.). A young man aged nineteen, with narrowing of the orifice of the pulmonary artery.

Secchi (*Berliner Klinische Wochenschrift*, no. 20, 1873).

Steudener (*Deutsche Klinik*, no. 1, 1870).

Besides these I find the following, not mentioned by Grüber: Veling (*Gazette Médicale de Strassbourg*, no. 1, 1854); Von Siebold (F. M. Heiland, *On the Relation between the Right and Left Halves of the Human Body*, Nuremberg, 1807); and

Sampson (*Philosophical Transactions*, vol. ix.). Of all these cases, sixteen were diagnosed during life; most of them in the more recent period. Detailed descriptions, however, are scanty.

With regard to the development of this interesting malformation, the view of C. E. von Baer (*Ueber Entwicklungsgeschichte der Thiere*, 1828) prevailed for a long time. The exceptional turning of the embryo to the right side instead of, as usual, to the left, and the coincident position of the vitelline sac to the right side of the foetus, were supposed to be the conditions on which the transposition depended. From the third day of incubation (at least in the chick), the embryo, lying with its long axis parallel to the transverse axis of the egg, and with its right side directed towards the apex and its left towards the round end of the egg, completes this turning towards the left. Hence, in the normal condition, in the gradual separation of the vitelline sac, the latter comes to lie to the left of the embryo. Among several hundred embryo chicks, Von Baer found only one in which this condition was reversed, and in which the turning took place towards the right; and in this case the heart showed an inverted arrangement of all its relations. Von Baer has no doubt that in this case transposition of the viscera had commenced.

Remak (*Untersuchungen über die Entwicklung der Wirbelthiere*), B. Schultze (*Virchow's Archiv*, Band vii.), Förster (*Die Missbildungen der Menschen*, 1865), and others, agree with von Baer. And in fact his view is supported by the observations made on symmetrical double monsters, in which the viscera are usually transposed.*

The conjecture expressed by Virchow (*Archiv*, Band xxii.) regarding the influence of the spiral twisting of the umbilical cord to the right on the production of transposition of the viscera, is contradicted by the relative frequency of the occurrence. Neugebauer (*Nägele's Geburtshilfe*, 1863), in 100 cases found the umbilical cord twisted to the right in thirty-nine.

On the other hand, Rindfleisch, in his *Pathological Histology*, has long put forth a theory which has much that is attractive in it. Starting from the physical premiss, that a column of fluid flowing through an elastic tube under strong pressure assumes a spiral twist, he applies this to the column of blood, and says: 'This property is shared by the blood-vessels, and the primitive cardiac tube behaves like a twisted cylinder, in the normal condition, like one twisted from left to right. With this, the apex of the heart is directed towards the left; and on this is dependent the normal position of all the viscera. There are, however, cases in which the rotation takes place in the opposite direction. The cardiac tube is then curved like a cylinder, twisted from right to left; the apex of the heart is directed towards the right, and the consequence is a complete transposition of the asymmetrical viscera.' How far this assumption is correct, I will not attempt to decide. In any case, the question still remains, 'Wherein lies the explanation of this exceptional rotation of

the blood-column?' Here, perhaps, the recent observations of Dareste may give some information. In the *Comptes Rendus* for 1870, he reports that he had succeeded in artificially producing transposition of the viscera, through a difference in the temperature to which eggs were exposed. Should his experiment be confirmed, it would be an important fact gained for embryology.

There are two other points of not less interest:

1. The condition of the spinal column in these cases.

2. The relation of individuals with transposed viscera to the almost universal law of right-handedness in man.

Professor Baum, of Göttingen, has directed attention to the first of these points. In the histories of my cases, I have expressly stated that in the child the spinal column was perfectly straight, while in the adult it was slightly convex towards the left. In most of the earlier described cases, this point is entirely unnoticed. And yet, in 1791, in his *Mémoire sur la Situation des Gros Vaisseaux*, Sabatier entered fully into this subject. He referred the normal curve of the spinal column to the right to the position of the aorta, the course of which is on the left side from the third to the eighth or ninth dorsal vertebra. Bichat (*Anatomie Descriptive*, tome i. 1866) and Bérard (*Bulletin de la Faculté de Médecine*, tome iii.) contradict this assumption, and ascribe the lateral curve of the vertebral column to the muscles of the right upper limb and their predominant use. But Bouvier (*Leçons cliniques sur les Maladies chroniques de l'Appareil locomoteur*, 1858), Böhling (*Die seitliche Rückgratsverkrümmung*, Berlin, 1851), and W. Grüber (*loc. cit.*), support Sabatier's view, and have again brought it into repute. Their grounds are the following.

1. The deviation of the spinal column takes place only in the part where the aorta lies along the side. Below the diaphragm it is not observed, although origins of muscles are still found here.

2. The influence of the blood-vessels on the bones is shown in many other parts of the skeleton.

3. The influence of the aorta occurs also in animals, in which nothing can be said of a predominant use of one limb.

4. In most of the cases where the aorta runs its course along the right side of the spinal column instead of the left, a deviation to the opposite side is observed, even in individuals who are right-handed.

In medical literature, only thirteen cases of lateral curvature of the thoracic part of the spinal column have been noticed. Of these, in nine recorded by Scoutetten, Pétrequin, Géry, Grisolle, Grüber, B. Schultze, and Pye-Smith, the curve was to the left; while in four recorded by Bérard, Rostan, Ross, and Luys, it was to the right. In six of the nine cases, the individuals are stated to have been right-handed; and the same is recorded of Bérard's and Rostan's cases. In both my cases there is right-handedness; but in the boy the spinal column as yet shows no deviation, in entire agreement with Bouvier's assertion (*op. cit.*) that, the younger the individual, the straighter the spinal column is. In the cases of transposed viscera recorded by Baillie and A. Cooper, the individuals used the right arm most; in Bujalsky's case the left was used more; but in these cases the direction of the spinal column is not described. In one case, observed by Böhling in Romberg's clinic, there was a strongly marked curve of the

* There seems to have been an exception in the case of the Siamese twins. At least, Eichwald and Heppner (*Jahresbericht*, 1871) assert that the left twin, Chang, had transposition of the viscera. [Sir J. Y. Simpson, in his account of the Siamese twins in the *British Medical Journal*, February 13, 1869, expresses the opinion, based on a careful examination made by Dr. Aitken, that the position of the viscera was normal in both.—*Trans.*]

spinal column towards the left. The man was left-handed.

While the small number of carefully recorded cases cannot settle the dispute between Bichat and Sabatier, most of them are in favour of the latter; and it is the more astonishing that only Bichat's view is taught in manuals of anatomy.

With regard to the second point, the relation of transposition of the viscera to right or left handedness, the question is a relatively new one. Hyrtl (*Lehrbuch der Anatomie*), has applied the arrangement of the large vessels in the thorax to the explanation of the irregular occurrence of left-handedness. Professor Oehl, of Pavia, communicated to him two cases of left-handed individuals, in whom, after death, the right subclavian artery was found to arise from the aorta beyond the left carotid. Hyrtl saw four such cases in the museum at Prague and three in Vienna, and is disposed to bring this vascular anomaly into causal connection with left-handedness. Pye-Smith also (*Guy's Hospital Reports*) has given his attention to this condition. In 296 cases he found this arrangement in force; in one of these, however, Peacock was able to determine the existence of right-handedness during life. Cases, however, were seen by Pye-Smith and others, in which not only was the left upper extremity more powerfully developed than the right, but this condition extended to the whole left half of the body. Just so it is not only the right arm, but the whole right half of the body, that enjoys the disposition to be better developed. This circumstance indicates a cerebral influence. Broca, in weighing forty brains, found that the left frontal lobe was distinctly heavier than the right. This was also found in 800 brains by Boyd (*Philosoph. Transactions*, 1861). Further, Gratiolet asserts that the left cerebral hemisphere goes in advance of the right in development. A number of neuropathologists—indeed, nearly all of them—place the centre for speech in the left frontal lobe. *A priori*, then, there is much probability in Broca's conclusion, that the general right-handedness of man is dependent on the earlier and more rich development of the left cerebral hemisphere. This, again, has its explanation in the direct and more free supply of blood through the straighter course of the left carotid (Leyden and Pye-Smith). From these facts it must follow that individuals with transposition of the vessels, which generally occurs in transpositions of the viscera, must have a disposition to be left-handed; and it would be extremely interesting if such a law could be established. But the communications above-mentioned leave the question open. In most of the cases, nothing is said as to whether the right or the left hand was most used. Among the few cases in which special mention of this point is made, left-handedness is in an exceptional minority (Bujalsky and Bühring). Most (8) of the cases were right-handed; so were also my two cases. They thus in no way direct us to a final conclusion, but they appear to contradict Broca's view.

In conclusion, I will not delay to offer my most hearty thanks to Professor Baum of Göttingen for his truly extraordinary kindness in placing at my disposal the literature of this interesting subject from his own library and that of Göttingen, and copying with his own hand what he could not send.

MOLLIÈRE ON SOME POINTS IN THE DIAGNOSIS OF SCLEROSIS OF THE NERVOUS SYSTEM.

M. Mollière's object in publishing these short notes (in the *Lyon Médical*) is to draw attention to some points, hitherto very obscure and but little studied, relating to organic diseases of the nervous centres. A more perfect knowledge of these details may enable the practitioner to combat these formidable affections in time; for, as M. Charcot has very judiciously observed, when we first come to diagnose sclerosis, the disease is completely established, and all hope of removing such alterations as exist is almost entirely dissipated.

The proliferation of the cells of the connective tissue (neuroglia) can be checked only at its early period of growth; at a later period, when this embryonic tissue is completely transformed into fibrous tissue (sclerosis) compressing and destroying the nervous elements, we can no longer hope to restore it to its natural state. It is greatly to be desired, then, that the physician should be acquainted with a certain number of symptoms which would enable him to recognise this interstitial morbid process while there is yet time for its successful treatment.

M. Charcot has taken great interest in this question, and has established these two important points, to which M. Mollière calls attention: 1. The development of the symptoms and lesions of locomotor ataxy in individuals previously affected with double atrophy of the retina; and 2. The frequent development of extensive sclerosis of the nervous centres in patients who have presented, for many years, the phenomena of well-marked or abnormal hysteria. With regard to the first kind of facts, M. Mollière has no personal observations of his own to offer; but of the second or hysterical kind, he is able to bring forward a certain number of cases. It is necessary to watch these patients for a considerable time in order to see their fatal end.

One of two cases brought forward by M. Mollière was a young woman with strongly marked hysterical antecedents, and who was admitted into the hospital with all the symptoms of the most striking hysterical paraplegia. This diagnosis was confirmed by all those present. She remained two months in the hospital without any great improvement. One morning she was seized with general symptoms of a formidable character, in consequence of some vexation. She died the same evening. At the necropsy, several patches of sclerosis were found on the pons Varolii, affecting deeply the subjacent nervous tissue. The medulla and spinal cord were healthy.

About the same time there was in the hospital a poor girl equally hysterical. Every one agreed in the diagnosis of the case.

It was a typical case of hysterical hemiplegia. However, for several months she had complained of violent pain beneath her left breast, to which little attention was paid on account of the whimsical character of the patient. She could still manage to walk, and what is more, if her hand were grasped unawares, she could be made to run as far as the end of the ward. She was again examined, when it was found that, besides an affection of the retinae, there was muscular atrophy of a most marked character on the whole of the paralysed side. From this moment, M. Mollière watched this patient with great attention, and all these symptoms were found to go on

increasing. When he lost sight of her, she was in a home for incurables. In short, all those strange and abnormal forms of hysteria, while simulating real lesions, do not simulate them so much as has been supposed, but are in many even the very proofs of those lesions. Hence, while we adopt a general mode of treatment for what we may consider as hysteria or a nervous affection, it would be well to employ, also, according to circumstances, some of those powerful remedies which are adopted in cases of organic lesions, and which are often inefficient because they are employed too late.

But while in women we sometimes find most valuable information for diagnosis and prognosis in affections which are said to be hysterical, among men it is in the existence of obstinate and prolonged neuralgia that we gather this information; so that every obstinate form of neuralgia, the general or local etiology of which is unknown, should be watched with great attention, and awaken a suspicion as to the existence of central and profound lesions. The following facts will serve as examples.

A patient enters the hospital with a most painful sciatica, especially at the level of the gluteal region. After some time, the pain is subdued. The patient is made to walk, but he is found to be ataxic, although he states that he walked properly before the neuralgic attack.

Another patient suffered from chronic gastralgia with obstinate vomiting. Affections of vision led to a proper diagnosis. The patient tottered, and had also affections of sensibility. Sclerosis of the cerebellum was considered probable. Later on he became ataxic, and could not walk, but his intellect was unaffected. There was, also, well marked muscular atrophy. It is the same in general paralysis.

J. LOCKHART CLARKE, M.D.

BOWDITCH ON THE COURSE OF NERVE-FIBRES IN THE SPINAL CORD.

In the *Boston Medical and Surgical Journal* for July 16, Dr. H. P. Bowditch gives an account of the results of some experiments made by him on the above subject. Experimental inquiry into the channels by which sensitive and motor impressions traverse the spinal cord has been made by several continental physiologists, especially by Woroschiloff. After describing the method by which he opened up the spinal cord in rabbits, Dr. Bowditch says that a systematic study of the effects of the mutilation was made, first on the production of reflex actions, due to irritation, by pressure and electricity, of the feet and ears of the animal; secondly, on the position of the limbs, both at rest and in movement; and thirdly, in the production of movements in the hind limbs, due to irritation by induced currents of the cord just below the calamus scriptorius. The animals were killed about five hours after the operation, and the portion of the cord operated upon was placed in alcohol and then examined.

In the first experiment, the anterior and posterior columns and nearly the whole of the gray substance were divided. After this section, no disturbance of the transmission of motor or sensitive impressions through the cord could be detected. Pressure on any of the four extremities produces vigorous movements of all four limbs. The animal sits and moves in a perfectly normal manner. Irritation of the spinal cord causes at first springing movements, and afterwards

tetanic flexion of both legs. Section of the lateral columns involving the cornua on each side (the counterpart of the first experiment) entirely prevents the transmission of impressions through that region of the cord. Irritation of one hind leg causes reflex movements in the same leg, or, if the irritation be strong, of the opposite leg as well. Irritation of a fore leg causes movements in the anterior, but not in the posterior part of the body. Irritation of the cervical cord causes movements in all the muscles of the body, except those of the hind legs. Section of the posterior columns alone is absolutely without effect on the condition of the animal. All movements are executed in a perfectly normal manner. There is nowhere hyperæsthesia or anæsthesia.

If, together with the posterior columns, portions of the lateral columns (the posterior portion) be also divided, the effect is much the same, except that in springing the extension of the hind legs takes place with diminished force, while the flexion of the limbs is unaffected. A feeble irritation of the spinal cord causes a powerful tetanic flexion of all the joints of the hind legs.

Division of the anterior columns with the adjoining portions of the lateral columns produces no effect, except that in springing the animal extends the hind legs more powerfully than in the normal condition. The result of these five experiments, showing that the channels of motor and sensitive impressions lie in the lateral and not in the anterior and posterior columns of the cord, is in opposition to the conclusions of many other investigators, and to the generally received opinion of physiologists.

This contradiction Dr. Bowditch considers as explained by the facts that the same portion of the cord is not always selected for operation and comparison, and that in his experiments the neighbouring parts were not compressed and injured through his method of operating.

Further experiments were performed, furnishing additional evidence that the lateral columns were the channels of motor and sensitive impressions. The cord was divided except the left lateral column, when irritation of either hind foot caused movements of the anterior limbs, the strength of the irritation required to produce this being greater on the uninjured than on the injured side. That is, there is hyperæsthesia of the injured side. Similar effects follow the section of one of the lateral columns. More extensive mutilations were performed, and the whole cord was severed except the posterior portion of the right lateral column, when irritation of the right foot caused only reflex movements of the hind limbs, while irritation of the left foot caused movements of the fore limbs also. There is complete loss of voluntary movements in the left hind leg, and irritation of the cervical cord has no effect in that limb, while in the opposite side, the springing movements are well marked. After section of all the cord except the anterior and middle portion of the right lateral columns, the movements produced by irritation of the hind legs are the same as those described in the case immediately above. Irritation of the fore legs causes movements of the right, but not of the left hind leg. Irritation of the cervical cord causes strong flexion of the right and extension of the left hind leg. On section of all but the anterior portion of the left lateral column, irritation of the hind leg, on the side of the cord completely destroyed, caused movements in the anterior

part of the body, but without hyperæsthesia. Irritation of the fore-limbs caused no movements in the hind limbs; and irritation of the cervical cord produced no movements in the hind quarters, except in the knee joint of the leg on the side where a portion of the cord was preserved.

Although these experiments proved the possibility of dividing the whole cord, except a very small portion, without preventing the conduction of impressions through that portion, yet, in view of the possible interference with the circulation in the retained part, due to the division of so much of the substance of the cord, it seemed to Dr. Bowditch desirable to seek to localise the channels of nerve-force in the different parts of the lateral columns, by retaining portions of both instead of only one of the columns.

The result of such experiments is, that motor and sensitive nerve-fibres are found in all parts of the lateral columns.

Sensitive fibres from both hind legs are found in each lateral column, but the fibres, in each column, which come from the leg on the opposite side are capable of producing stronger reflex movements in the anterior part of the body than are called forth by excitation of the fibres which come from the leg on the same side (crossed hyperæsthesia).

The centripetal fibres, whose excitation produces these strong reflex movements, as well as those whose section on the opposite side gives occasion to them, lie in the middle third of the lateral columns; while the anterior and posterior thirds contain sensitive fibres which call forth movements of only moderate intensity in the anterior part of the body.

Motor fibres for both legs are found in each lateral column, but the motor fibres in different parts of these columns are called into activity in different ways. The reflex movements due to irritation of a fore leg can be excited in a hind limb only when the anterior half of the lateral column on the same side is preserved.

The co-ordinated movements of sitting and springing, and those produced by irritation of the cervical cord, are transmitted to each hind leg through the middle third of the lateral column on the same side.

Tetanus of both hind legs may be produced by irritation of the cord, even when the whole lateral column on one side has been destroyed; but if in addition to this the anterior two-thirds of the lateral column on the other side have been divided, tetanus occurs only on the side where a portion of the cord is intact.

The author gives reasons, too long for a place in this report, for regarding the crossed hyperæsthesia above alluded to as caused by the division of the inhibitory fibres having their origin at the periphery and going to the centre of reflex action in the medulla. According to this view, the excito-reflex fibres of a limb have their course mainly, but not exclusively, in the opposite side, while the inhibitory reflex fibres lie chiefly on the same side of the cord.

To effect still more perfect localisation, external portions of the lateral columns were divided, and the conclusions drawn therefrom are as follows.

Motor and sensitive nerves are found mixed together in all parts of the lateral columns.

The fibres which preside over co-ordinated movements of the hind limbs, as well as those whose section causes hyperæsthesia on the side of the injury, lie in those parts of the lateral columns which are nearest to the gray substance. The motor nerve-

fibres of the foot and lower leg seem to lie in the lateral columns externally to those of the thigh.

In all these experiments, it was found that considerable portions of the lateral columns could be removed without affecting motion or sensibility in the leg, although the motor and sensitive character of the divided portion could be demonstrated with certainty. This would seem to indicate that the same muscle, or the same cutaneous surface, is represented in the spinal cord by fibres having various positions in the lateral columns. This agrees with the observations of Eckhard and others, which show that two or three adjacent spinal roots send fibres to the same region of the body.

The main result of all these experiments, namely, that the lateral columns contain all the channels of motor and sensitive impressions, receives confirmation from the observations of Stilling on the areas of the cross-sections of the spinal nerves and of the columns of the spinal cord at different levels. A comparison of these areas shows that the lateral columns increase in size from below upwards, as if each successive spinal root contributed a certain proportion of its nerve-fibres to their formation.

(To be continued.)

BLYTH ON CONTAGIOUS PNEUMONIA.

In a very interesting report presented to the Okehampton Rural Sanitary Authority at their meeting, August 7, 1875, Mr. A. Wynter Blyth raises this question and discusses it at length. His statement and argument is as follows.

The disease that principally prevails in the Okehampton district—and that has prevailed with great fatality since Mr. Blyth has been connected with the union—is pneumonia. Now pneumonia is generally supposed to be a simple inflammation of the lungs brought on by cold or wet, sometimes affecting one, or occasionally both lungs, and very frequently extending to the pleura, and when it does so it is described as pleuro-pneumonia. In a previous annual report, he suggested that there were at least two kinds of pneumonia, one apparently brought on by cold, the other propagated by seed—and hence a contagious disease, the one influenced by weather and by seasons, the other obeying the same laws as such diseases as small-pox, scarlet fever, etc. He remarks that it is no new thing for a disease which is propagated by seed to seize and attack in preference one particular organ. Small-pox determines to the skin, typhoid fever to the bowels, hydrophobia to a portion of the spinal cord, and therefore the determination of a contagious disease to the lung is nothing very extraordinary. Besides this, there is a disease in cattle, an infectious pleuro-pneumonia, and as we have a small-pox and sheep have a small-pox, and as we have a scarlet fever and horses have a scarlet fever (strangles), and as we have a typhoid fever and as animals also have a typhoid fever, if it be established that man is affected with an infectious pleuro-pneumonia, it is only another link in the chain of evidence showing the intimate connection between the animal and human organism. Dr. Christian Budd has for many years held that the pneumonia he had observed was infectious, and when Mr. Blyth first came into the district Dr. C. Budd called his attention to it, and related many remarkable instances in support of such a view. In this opinion Dr. C. Budd stood alone, Mr. Blyth believes, until

recently, but towards the end of last year, and up to the present time, there has prevailed in the North of Devon a most intense epidemic of pneumonia. Its infectious character was so marked that several medical men of standing and experience, who must have seen hundreds of cases of pneumonia, were astonished and puzzled at this to them new phenomenon, and were even inclined to doubt whether it was not rather a new scourge than an old well-known disease. For example, the following is a letter which Mr. Blyth received upon the subject. 'The disease alluded to in your letter and annual report has puzzled me much—it is unquestionably a pleuro-pneumonia which creeps on insidiously, first through one day, then the other. At the commencement of the attack, rigors and severe pain in the head, back, and legs, with, in some of the cases, persistent diarrhoea and great cerebral disturbance, have been unfailing symptoms.' He then gives a list of cases, which, suppressing names, is as follows. A man became ill of pneumonia in April, and died after ten days' illness; his wife caught the same disease a few days after his death. A farmer's daughter, about a mile from the house of the former patients, became ill of the same disease about the same date, and a fourth case followed in the neighbouring village, and subsequently there occurred four other cases in the same parish. 'Since November,' continues the writer, 'I have had, I should think, twenty cases. A farmer in another parish became ill April 16; I was sent for April 18, and he died about midnight. The servant woman went home ill of the same disease about a week afterwards, and gave it to her married sister, with whom she was staying. The idea had already occurred to me as to whether the disease could be in any way allied to the pleuro-pneumonia of cattle.' As further testimony of a recent and valuable kind, Mr. Blyth has here a letter which he received from Dr. C. Budd: 'Northawton, July, 1875.—Dear Dr. Blyth, I believe it was soon after your appointment that I first called your attention to the existence of an epidemic of pneumonia, which had then for some time prevailed in this neighbourhood. Since that time the epidemic has rapidly extended, and, I believe, now prevails over a large extent of the country. As I had many years ago recognised it as a blood disorder, capable of being propagated by contagion, my attention was early directed to means calculated to prevent its spread. As the lung is the organ especially attacked, it was reasonable to suppose, from analogy to other similar disorders, that the emanations from the lung were the main source of the infectious principle. I have, therefore, for many years, in private practice, disinfected the sputa. But, as it is probable that all the products of expiration carry with them the specific poison, I have considered this expedient insufficient; and have, in some cases, tried the effect of inhalation of carbolic acid vapour. The distress of breathing, however, which accompanies the disorder, renders it difficult to carry this plan out. Whilst always disinfecting the sputa, I have of late mainly relied upon isolation (as far as practicable) and free ventilation. To ensure this last essential, I have in labourers' cottages generally kept the bedroom window open all the night through. If you should be able, as I hope you may, to devise any means still more efficacious, you will confer an immense benefit on humanity, and deserve the gratitude of the community. Whether this disorder differs in its essence from the sporadic cases of pneumonia

one has been accustomed to see all one's life, further and careful investigation are required to determine. This, however, I have observed, that in favourable cases, *i.e.*, in cases of recovery, the course and duration of the malady are, in both cases, about the same.—Yours very truly, CHRISTIAN BUDD.' Thus, Mr. Blyth argues, there is ample evidence of its peculiar and infectious character. The figures in the death returns are of not much value, as a guide to its prevalence, for two reasons (1), under the term of pneumonia, that at least two diseases are confused, just as under the old term of typhus, two fevers, *viz.*, typhus and typhoid, were only a little time ago confused together; and (2), because, although it is a very fatal disease, yet a large proportion recover. Mr. Blyth has thought it his duty to lay the facts before the local sanitary authority prominently, though from not being recognised as an infectious disease, from its laws of propagation being at present a matter of theory and supposition, little can be at present done by them as a sanitary authority to prevent its spread, except insisting on disinfectants being used and isolating the patients where possible; 11·2 per cent. of the deaths during the quarter have been returned under the head of pneumonia in this union.

[In the annual report of the Cork Street Fever Hospital in Dublin, Dr. Grimshaw calls attention to the occurrence of epidemic pneumonia, and expresses an opinion as to its pathology identical with that of Mr. Blyth.]

ANATOMY AND PHYSIOLOGY.

MICHEL ON THE DISTRIBUTION OF THE FIBRES OF THE OPTIC NERVE IN THE HUMAN RETINA.—A concise account of the observations of Professor Michel on this subject will be found in *Zehender's Klinische Monatsblätter*, April, 1875. According to these investigations, the nerve-fibres in the optic papilla on the nasal side are superimposed one over the other in large broad bundles, while on the temporal side the bundles are comparatively small and contain but few fibres, and, as they approach the macula lutea, there are distinct intervals between them; in this situation, too, the bundles are straight, while in all others they are more or less arched. In the immediate neighbourhood of the papilla the nerve-bundles lie one over the other, an arrangement which is not met with in any other situation with one exception. Between the papilla and the macula lutea the intervals between the nerve-bundles are narrow and slit-like, and the bundles anastomose with each other at a very acute angle. The fibres which pass directly to the macula appear to lose themselves in the ganglion-cell layer, while those further removed encircle the macula and anastomose very closely and completely with each other. In the region between but immediately above the macula and the papilla the nerve-bundles are also slightly superimposed, and cross over each other, forming the exceptional instance above referred to. The entire arrangement of the optic fibres is that of a plexus, the bundles becoming smaller and flatter as they radiate towards the peripheral portions of the plexus, and the intervening spaces, which are at first very narrow and slit-like, become ultimately wider and broader. At the ora serrata, the nerve-bundles terminate for the most part by free extremities.

Within the papilla the blood-vessels run parallel with the nerve-bundles, but it sometimes happens that the fibres which pass straight to the macula lie immediately over a large branch of the central artery. Elsewhere, as a general rule, the arteries appear to be partially embedded in the nerve-bundles, and are distributed in the same direction with them.

BOWATER J. VERNON.

CIACCIO ON THE MEMBRANE OF DESCMET AND ITS EPITHELIAL COVERING.—In the *Memorie dell' Accademia delle Scienze di Bologna*, series 3, vol. 5, Dr. G. V. Ciaccio gives the results of his observations on Descemet's membrane. He has studied this membrane in man and in other animals by various methods (cauterisation of the cornea with nitrate of silver immediately after death; treatment with a 0.5 per cent. solution of chloride of gold, with permanganate of potash, and with chloride of sodium). From a comparison of the results, he has arrived at the following conclusions. 1. Descemet's membrane is composed of very fine fibres, cemented together by a rather tenacious material, and it is provided with microscopic spaces by which the anterior chamber communicates with the small lamellæ and channels in the cornea, and through these with the lymphatic vessels of the conjunctiva. 2. The stomata which are scattered among the epithelial cells lining Descemet's membrane lead to the above-mentioned spaces in the anterior chamber. 3. After irritation or inflammation of the cornea and iris, it happens in some rare cases that there are seen, in the spaces of the membrane of Descemet, lymphatic corpuscles along with the aqueous humour. 4. The substances of the epithelial cells of the membrane of Descemet which surrounds the muscles is traversed by the fibres, which are interlaced like a network. 5. The contractile power of these cells resides in the nucleus and in the protoplasm within it, being, however, greater in the latter.

A. HENRY, M.D.

LEWIN ON THE ACTION OF ACONITIN ON THE HEART.—L. Lewin (*Centralblatt für die Medicin. Wochenschriften*, no. 25, 1875), working under Liebreich's direction, finds the following results.

1. The action of aconitin in doses of 0.025–0.015 gramme in frogs diminishes very pronouncedly the frequency of the heart's action, and this diminution is most rapid when the drug is injected into the veins; it occurs more slowly when given subcutaneously, and slowest of all when it is injected into the stomach. The mean duration of this time when it is injected into the veins is one hour, and in subcutaneous injection, two hours.

2. In some cases this slowness was followed by an increase of the frequency of the heart's action, lasting for a very short time, the heart's action soon becoming irregular, or it passed into stand-still, always in diastole.

3. At the end of almost all experiments, an arrhythmic action of the heart occurred, mostly caused by a more frequent pulsation of the auricles, sometimes the auricles alone contracting.

4. The peripheral nerves suffered with medium doses (0.005–0.008 gramme) a marked diminution in their excitability, with larger doses paralysis.

5. *Post mortem* electrical stimulation did not always cause the heart to contract.

In warm-blooded animals the phenomena are more marked, the most pronounced symptom being the strong dyspnœa. In opposition to Achscharunow, the author finds that rabbits, even after an abso-

lutely fatal dose, can be kept alive by artificial respiration. The author assigns a direct action on the respiratory centre in the medulla as the cause of the dyspnœa.

As constant as the dyspnœa is a quantitative and qualitative change in the heart's action, similar to the effects already observed by Böhm and Wartmann. The author tabulates his views thus.

1. The anomalies in the heart's action, occurring in poisoning with aconitin, are not caused by an affection of the medulla oblongata.

2. The observed and apparently contradictory results of the experiment can be united into two groups. Both comprise a lesion of the ganglionic centres in the heart, and are thus distinguished: the one coincides with the integrity of the vagi, the other with their paralysis.

3. The integrity or paralysis of the vagi depends upon whether the intracardial endings of the vagus are stimulated for some time, or are paralysed at once.

4. The difference in the action is quite an individual one, and does not belong to the poison.

The often observed arrhythmical pulse is explained by the non-simultaneous and unequal effect of the aconitin on the one or other cardiac centre, perhaps caused by its unequal distribution in the blood.

ROUGET ON THE MIGRATIONS AND METAMORPHOSES OF THE WHITE CORPUSCLES OF THE BLOOD.—Ch. Rouget's new investigations on the circulation of the larvæ of frogs have shown (*Archiv. de Physiologie Norm. et Pathol.*, 1874, 812, and *Centralblatt*, no. 21, 1875) that the red corpuscles in their diapedesis through the walls of the vessels remain perfectly passive. The intravascular pressure causes one corpuscle after another to pass through the cell-protoplasm and the structureless cuticula of which the walls of the young capillaries consist. In that the red corpuscles are incapable of self-movement, they cannot again regain their normal forms, which they have lost by being passed through the capillary walls. They therefore soon degenerate in their foreign surroundings outside the blood-vessels. The white blood-corpuscles arise from the fixed connective-tissue corpuscles, and are returned to the blood by the lymph. In virtue of their amœboid movements they are able, independently of the blood-pressure, to pass through the vascular wall. As soon as they meet a red blood-corpuscle outside the vessel, they surround it with their processes. In the interior of the white corpuscle the red one is dissolved, it falls into pigment-granules, and thereby transforms the colourless corpuscle into a pigment-cell. The latter, just like the original leucocytes, are capable of amœboid movements; they pass partly into the vessels, and their further fate is unknown; and partly they form pigmented tunica adventitiæ of the vessels and nerves, together with the chromatogene layer of the subcutaneous tissue. The star-like subepidermal pigment-cells arise originally from white blood-corpuscles. On the application of mechanical stimuli, the pigment-cells which arise from the white corpuscles collect around the scar and form neoplasms whose structure is similar to the fungous granulations of the wounds of mammalia.

JAKOWICKI ON THE PHYSIOLOGICAL ACTION OF TRANSFUSION OF BLOOD.—A. Jakowicki (*Gazeta Lekarska*, 1875, no. 1-11, and *Centralblatt*, no. 23, 1875) confirms the results of W. Müller as to defibrinated blood when injected into an animal not pro-

ducing blood extravasations, as stated by Magendie, and also the results of Landois (*vide* LONDON MEDICAL RECORD), that injection or direct transfusion of foreign blood or of defibrinated blood is followed by a change in the entire blood of the animal, as manifested in the excretion of hæmoglobin in the urine. If the quantity injected be not too large, the urine clears up again and resumes its normal condition. In these experiments the blood of the cat, horse, and calf, were transfused into dogs.

In injection of blood where the corpuscles had been dissolved, no matter what was the method employed to produce solution, or injection of a solution of hæmoglobin, the author, like other observers (Francke and Naunyn), found that coagula were formed—specially pulmonary infarcts—which caused death. In dogs hæmaturia was constant, and often convulsions were present.

According to Alex. Schmidt, the fibrin-ferment is formed after the blood escapes from the vessel. In injecting defibrinated blood, a considerable quantity of this ferment is introduced into the blood. The author prepared this ferment after the method of Alex. Schmidt, and injected large quantities of it, after having tested it with the plasma of dogs' and horses' blood. The author arrives at the following conclusions. (1) The fibrin-ferment is a normal constituent of the blood circulating in the organism (in opposition to Alex. Schmidt). (2) The organism can destroy the ferment injected into the vessels, so that the surplus disappears after a time, and the quantity of the ferment returns to the normal. (3) The organism presents conditions which are able to limit the action as well of the ferments introduced from without as of that circulating normally in the blood.

HITZIG ON THE SEAT OF THE CEREBRAL FLUID.—G. Hitzig (*Reichert und Du Bois-Reymond's Archiv* 1874, *Centralblatt*, no. 19, 1875) remarks that the majority of authors generally found no fluid in the sac of the dura mater cerebri on the vertex. The author, on the contrary, from operations upon dogs, has convinced himself of the existence of a not inconsiderable quantity of fluid in that sac. On passing a fine scalpel during life between the dura mater and pia mater a fluid either clear or mixed with blood, always flowed out, whilst several hours after the death of the animal the operation was without result, thus coinciding with what is found in the human subject. On the contrary, the lateral ventricles were always full of fluid. Immediately after the death of the (poisoned) animal water trickled out of small openings in the dura mater, when here there was no question of blood-pressure. During life, therefore, there must be a higher secretion-pressure than the blood-pressure and elasticity of the tissues which press the brain against the skull. After death the water will be pressed into the brain from the sac of the dura mater by the remaining elasticity of the compressed brain.

MORIGGIA ON SUGAR IN THE FETUS AND ADULT.—Moriggia (*Reale Accademia dei Lincei, Estr. d. Sess.*, Feb., 1873, *Centralblatt*, no. 10, 1875) investigated the quantity of sugar and partly also of glycogen in numerous organs and fluids in the fœtus and adult of many classes in the animal kingdom. His chief results are: That the blood of carnivora and herbivora at all times of life and in all stages with similar food contains sugar. The fresh

bile of adult animals generally contains sugar, the acid or sometimes faintly alkaline reaction which sometimes appears, arises from the transference of the sugar into lactic acid. Sugar is always found in the muscles, heart and lungs, sometimes in the spleen, but never in the kidneys, urine, brain, salivary glands, or the pancreas of the adult or newly born fœtus. Sugar was found in the amniotic fluid up to the end of intra-uterine life, but the quantity seems to diminish towards the end of pregnancy. In very young fœtuses, whose whole body was examined at once, only traces of sugar were to be found; whilst at all later periods of foetal life it was to be found plentifully in the urine, in the bile, and peritoneal fluid, so that the fœtus may be regarded as truly diabetic [as Cl. Bernard had already shown]. Sugar was found plentifully in the muscles, lungs and heart, in traces in the spleen, pancreas, parotid, both placentæ, and the skin from the earliest foetal period to maturity. The latter is also true of the kidneys, and Moriggia supposes that their sugar passes through the urachus with the amniotic fluid. Sugar was never found in the brain. Sugar and glycogen were found plentifully at all times in the liver, just as in the adult. In the white and the yellow of eggs, fresh, old and hatched, there is much sugar.

The author regards the maternal blood as the source of the sugar in the fœtus, at least in the earliest period of intra-uterine life.

The obvious constancy in the presence of sugar at all times of animal life shows the immense importance and necessity of a certain quantity of sugar for the development and sustenance of the organism.

SEEGAR ON THE REDUCING ACTION OF SUGAR AND URIC ACID IN THE COLD.—J. Seegar (*Centralblatt*, no. 21, 1875) observes that it is well-known that uric acid, like sugar, can reduce cupric oxide when heated. In order to ascertain the worth of the usually cited control-experiment, he tested the solution with Fehling's solution and allowed the mixture to stand in the cold from six to twenty-four hours. It is said that if sugar be present reduction follows in the cold, whilst uric acid alone in the cold has not this effect. The author, however, finds that when the sugar is in small amount it loses the property of reducing cupric oxide in the cold. A 0.1 per cent. watery solution of sugar produced a scarcely perceptible reduction in the cold, whilst a 0.5 per cent. solution had no reducing action at all in the cold. A 0.5 per cent. solution of uric acid acts powerfully as a reducing agent in the cold (such a quantity, of course, never occurs in the urine). The usually cited control-experiment is, therefore, valueless, when we have to deal with small quantities of sugar.

HARVEY ON THE INTERMEDIARY SUBSTANCE OF THE TESTICLE.—Dr. R. J. Harvey, in a preliminary communication to the *Centralblatt für die Medicinischen Wissenschaften*, no. 30, upon the above subject, does not agree with Von Ebner, Hofmeister, etc., that the cells therein found are to be regarded as connective tissue corpuscles. He concludes that they are nervous structures, provided with nucleated vasomotor nerve-fibres. The cells are large, massive, and have a sharp contour, and sometimes contain pigment. There is well marked nucleus with nucleolus. The processes are best investigated in the rat by a modification of the gold method. In this animal the cells seem to possess only a single thick process; many are tripolar or multipolar; the greater number, how-

ever, being bipolar. These cells bear a special relation to the blood-vessels, their arrangement and relations to the vessels, however, vary with the animal investigated.

WM. STIRLING, D.Sc., M.D.

PATHOLOGY.

BRODOWSKI ON GIANT-CELLS AND TUBERCLES. Professor Brodowski, of Warsaw, has an article on this subject in Virchow's *Archiv*, vol. lxiii. Of late, numerous investigations on giant-cells and their connection with tuberculosis have been published. A few authors have adopted Virchow's view, that they generally originate from the connective tissue cells, while others (Klebs, Köster) consider them only as cross sections of capillary lymph-vessels, whose lining epithelium had become hypertrophic. Schüppel devoted much time to the solution of this question. He found delicate round or oval-shaped masses of protoplasm very much resembling giant-cells in smaller blood-vessels, and considers them as the germs (protoplasts) of giant-cells. As soon as nuclei appear in these masses, they become real giant-cells, and the walls of the vessels in which they were formed decay. Other investigators admit that the giant-cells are closely related to the blood-vessels, while they differ in their opinion about the origin of the formations in question. Some think that they originate from cells of the walls of the vessel; others believe that they may form from any cells.

The author found that giant-cells are unquestionably connected with changes in the blood-vessels, but that they do not originate from completely formed vessels, but only from the blastema of such. He admits only that giant-cells sometimes may have a mechanical connection with blood-vessels.

Aside from giant-cells we find in tubercles, as well as in other pathological formations, little cells with radiate nuclei resembling giant-cells, but more delicate than these. Besides, numbers of cells can be observed in a transitory state between the two mentioned forms, especially in the so-called tubercles of the spleen, the red marrow and sometimes in phthisic lungs. These facts made it evident to the author, that the smaller cells are only juvenile forms of the giant-cells. Dr. Brodowski found, further, long bridges of protoplasm as a connection between capillary vessels and the smaller cells, and that they were identical with those prolongations of protoplasm, which of late are pronounced to be the beginnings of new blood-vessels. If this bridge be solid and free from nuclei, the little cells connected with it are also free from nuclei, or contain only a few. In case the bridge contains nuclei, they are of the same form, etc., as those of the more developed germs of new vessels. Sometimes that part of the bridge near the vessel contains vacuoles. The author was sometimes enabled to inject in the corpses of infants, from the blood-vessels, the roots of the protoplasmic bridges, as well as the different kinds of giant-cells. The formation of the latter is therefore considered by him as the product of abnormal activity of the blood-vessels, characterised by hypertrophy of some parts of protoplasmic blastema of these vessels, and by a formation of an unusually great number of nuclei in them. Of course, the misformed blastema is not further developed,

only sometimes phenomena may be observed in these formations, which manifest a further development of blood-vessels—vacuoles: division of the protoplasm similar to that which precedes the formation of epithelial cells in capillary vessels.

The author thinks that the giant-cells sometimes may undergo similar changes as the bridges between them and the capillaries, *i.e.*, that they do not hinder the further development of the vessels.

Dr. Brodowski then explains some peculiarities associated with tubercles. Giant-cells are often found (in tubercles) in a network of fibres, in which are entangled numerous lymphoid cells. The author thinks with Schüppel, that the network resembles the angioplastic (vessel-forming) prolongations; like these, it often contains oval-shaped nuclei, and also vacuoles; it may probably change to giant-cells. The empty spaces in giant-cells, Brodowski thinks, are vacuoles, which are found, as well in normal angioplastic prolongations, as in hypertrophic giant-cells, and which, according to Rouget, play a prominent part in the formation of the calibre of the vessels. The presence of blood-corpuscles and pigment in the giant-cells will be understood, if we consider that injections often find their way into giant-cells by means of the protoplasmic bridges. The author thinks that the capillary vessels may be not the only place of origin for giant-cells, but that they may form from any protoplasm containing nuclei, and that they also may be formed from lymph vessels.

Dr. Brodowski found enlarged epithelial cells with several nuclei (similar to those found by Friedländer in the vessels of the pregnant uterus after the eighth month) in small vessels situated near the so-called tubercles, or in recent syphilitic formations. Sometimes the vessels were completely filled by such cells. In a case of tuberculous meningitis, he found besides giant-cells, in so-called tubercles, protoplasmic bridges in the small vessels near them, resembling those in which the giant-cells are embedded. The author proposes the name angioblast for all such protoplasmic formations arising from germs of new vessels.

When the old dispute, whether tubercles are specific or whether they are only a peculiar form of inflammation, seemed to be ended in favour of the latter view, Langhans, Köster, and Schüppel, declared themselves for its specific character. They found that a tuberculous knot always contains one or several giant-cells, embedded in a protoplasmic network between which are entangled lymphoid-cells. But soon afterwards cases became known, which proved that giant-cells are also present in other formations. Klebs found them in elephantiasis arabum, the author in lupus. Then Friedländer communicated his views on the matter, taking all formations for tubercles which contain giant-cells. Some time afterwards the author found them in the bronchi and in the left ventricle, when in a state of syphilitic degeneration, in chronic ulcers of the leg, etc. Friedländer, who observed them in still more places, considered such cases as localised tuberculosis. At last Köster communicated a number of similar cases, subscribing partly to Friedländer's views, but he did not admit their formation in healthy tissue. Adopting the views of the latter investigators, we had to consider syphilis, lepra, and glanders, likewise as tuberculosis. To avoid such a confusion, the author proposes, for a formation caused by so different

pathological irritations, a name taken from its histological character. He considers as the principal elements of this structure, besides a network of giant-cells (giant-angioblasts), a number of small cells resembling white blood-corpuscles. The author is convinced that this tissue is only a modification of granulation tissue. The latter consists of a number of small cells, a reticular tissue and a great number of recent vessels, while we find in our pathological structure, in place of these, only misformed germs of vessels (angioblasts). Sometimes the author observed even a few vessels in so-called tubercles of recent origin. As he thinks that the granulation tissue forms the base of these structures, he calls them *granuloma-giganto-angioblasticum*, which signifies only their anatomical character. They may be caused by inflammatory irritation, by infection with specific poisons or with substances formed in the midst of the cheesy products of inflammation, etc. Their constitution varies not only among different persons, but even in the same individual, according to the character of the inflammation, anatomical conditions and other peculiarities.

VON LANGENBECK ON THE OCCURRENCE OF CARCINOMA AFTER LUPUS.—In a paper read before the Medical Society of Berlin and reported in the *Berliner Klinische Wochenschrift*, no. 24, 1875, Baron von Langenbeck asserts that he does not acknowledge the supposed identity of lupus and carcinoma, and that he has been led to regard them as two distinct diseases. In some rare instances carcinoma may be developed on portions of skin affected with lupus but never except where the lupous ulceration has gone on for many years and resulted in not quite complete healing, or has left cicatrices which are subjected to prolonged irritation and inflammation. The occurrence of carcinoma on lupous portions of skin has no more significance than its far more frequent occurrence in cicatrices left by extensive burns of the face when these cicatrices, as may be those of lupus, are the seat of much irritative mischief. The clinical aspect of lupus differs much from that of cancer of the skin, and especially in the respect that the former disease may be cured by giving internal remedies, Zittmann's decoction, for instance; whilst, as is well-known, cancer never yields to such treatment. Of very many cases of lupus which he has observed, Baron von Langenbeck can recall to mind but three only, in which epithelioma was subsequently developed. All these patients had suffered early in life from lupus of the face, which, after long-continued ulceration, destroying much of the skin of the cheek, and portions of the nose and ear, had resulted in the formation of a cicatrix. The first case was one of a woman aged forty years, who, during her period of puberty, had been affected with lupous ulceration of the skin of the cheeks, nose, and upper lip. This ulceration, after partial destruction of the nose, terminated in the formation of a cicatrix which remained sound for fifteen years, at the end of which interval a small warty growth made its appearance near the remaining portion of the nose. This growth increased in size, involved the whole portion of the nose and upper lip, and finally sprouted out into a large cauliflower-like tumour made up of soft granulations. The subject of the second case was a man aged fifty-nine years who, from childhood up to his thirtieth year, had suffered from lupus of the face. The ulceration had involved the right cheek and caused extensive

destruction of skin. In the year 1875, the previously sound cicatrix presented a tumour, which spread rapidly over a large portion of the right side of the face. The third case was one of a man aged sixty-nine years, who, in 1865, was first attacked with lupus, which commenced in the right cheek, and subsequently spread over the nose and upper lip, and terminated in indurated and tuberos thickening of the integument. Eight years after the first appearance of the lupus, the apex of the nose presented a small tumour which speedily ulcerated, and then rapidly increased in size and involved the whole nasal organ. Baron von Langenbeck does not agree in a statement recently made by Dr. Lewin, to the effect that cicatricial contractions are characteristic results of lupus. This disease may result in cicatricial contraction when it occurs in parts where the skin is freely movable; and ectropion of a lower eye-lid, eversion of a lip, and narrowing of the oral aperture, may occur after lupous ulceration, though not less readily than after a severe burn or any other cause of destruction of the integument of this region. But there are certain forms of integumentary cancer, which, with extension of the disease and infiltration and ulceration of the affected parts, give rise to dense cicatricial formations, and so cause severe distortion. In a case of slowly spreading cancer of the cheek, the corresponding angle of the mouth, and also of the nose, may be dragged outwards and upwards as far as the malar bone. In one variety of cancer of the skin there is more or less formation of large corneous masses of epidermis, and sometimes, though rarely, cornua humana, several centimètres in length, are found at or about the cancerous part.

W. JOHNSON SMITH.

KLEBS ON THE REGENERATION OF PAVEMENT-EPITHELIUM.—E. Klebs (*Archiv für Experiment. Pathologie*, iii. 125, and *Centralblatt*, no. 30, 1875) has subjected the question regarding the source of the newly formed epithelial cells on the surface of wounds to a new investigation. He experimented on the web of the frog's foot, and has arrived at the result, in opposition to Biesiadecki, that the wandering blood-corpuscles are not concerned in the formation of young epithelium, and that the epithelium is exclusively formed by the outgrowth of the deepest layer of the margin of the wound. The outgrowth occurs either in this way, that the individual cells of this layer become contractile, ultimately become loose, and represent wandering epithelial cells, which again form themselves into nets and become flattened one against the other; or this occurs simultaneously in all cells of the epithelial margin, whereby a uniform growth of the epithelium occurs, which is only apparently formed by the excretion of a homogeneous plasma (Arnold), and is produced rather by the development of special and equally contractile protoplasmic cylinders, which also grow out of the cells of the epithelial margin. These latter break up by division into polygonal nucleated plates, which lose their contractility and represent the newly formed fixed epithelial cells. The nuclei in the epithelial cells concerned in the regeneration break down (passively, by contraction of the protoplasm) in the usual way into granules, lose their nucleoli, becoming clear balls, whilst new nuclei arise in the contractile protoplasm, by the separation and radiate arrangement of the granules of the protoplasm around a clear ellipsoid centre. The nucleoli are formed outside this ellipsoid and pass into

it, changing at first their place, and then fix themselves in the two centres of the ellipsoid, or also in the middle between both (nuclei with one or two nucleoli). A hyperplastic pathological development of the nuclei occurs by the apposition of clear balls, which arise outside the nucleus, and then unite with the nucleus. These forms may also disappear with the formation of holes and divided nuclei. In the formation of definite fixed epithelial cells the nuclei change with the formation of a membrane into bladders containing mucin, which may still have a nutritive function, but which are without value for proliferation and regenerative processes. The formation of new nuclei in the contractile epithelial plasma begins before or during the division, or even in the pieces, separated by division, and begins here also with the formation of clear balls.

WM. STIRLING, D.Sc., M.D.

KLEIN ON THE PATHOLOGY OF SHEEP-POX.—An important paper, by Dr. Klein, of the Brown Institution, on 'The Pathology of Sheep-pox,' has been published in the reports of the medical officer of the Local Government Board, and reprinted in the current number of the *Quarterly Journal of Microscopical Science*. The author gives first an explanation of his method, and afterwards describes both the microscopical characters of the sheep-pox virus and the anatomical changes at the seat of the primary and secondary eruptions respectively.

Pure lymph and lymph diluted with a half per cent. solution of common salt were employed for inoculation, but without any difference in the result.

Two methods of infecting the animals used were adopted: (1) inoculation by subcutaneous injection, (2) direct injection of lymph into the external mammary vein. The object of the latter method was to induce a disease as nearly as possible resembling the natural sheep-pox, and to procure a secondary eruption.

A specimen of clear lymph, after having been kept in a capillary tube for several days, was observed to contain the following structures: masses of granules of variable character; transparent spheroids with distinct border lines, and occurring in chains; highly refractive micrococci variously grouped; collections of decolorised blood-corpuscles with micrococci in the interstices; bacteria free, and in colonies; micrococci twice the size of those mentioned above enclosed in greenish envelopes, and occurring in couples or in small groups; clusters of spheroids corresponding to Cohn's *microsphaera baccinæ*. After this specimen had been kept for a period of twenty-four hours at the temperature of incubation, the masses of granules were found to have undergone a change, having resolved themselves into a felt-work of delicate granular filaments uniting the granules with each other. At the end of forty-eight hours the filaments had become more distinct, and the granules had assumed the appearance of green spheroids and micrococci. Another sample of lymph, perfectly fresh, was observed to contain granular pus-corpuscles, coloured blood-corpuscles, and numerous small highly refractive granules, either isolated or in couples, which exhibited molecular motion; in addition to these, after having been kept at 32° Cent. for twenty-seven hours, there appeared spheroids, either free or contained in swollen pus-corpuscles, and differing from nuclei in their greenish colour and homogeneous texture; besides micrococci arranged in dumb-bells or in colonies of convoluted chains;

and long filaments, some smooth, others still presenting the necklace-like structure. A few hours later the colonies had increased in number and size, while some of the individual micrococci had become larger and assumed the appearance of rods with terminal swellings.

Dr. Klein concludes from his observations that 'the highly refractive spheroid is the only form that can be regarded as characteristic of lymph of sheep-pox in its active condition.'

The author goes on to consider the changes which occur at the seat of inoculation. The primary pock he describes as being developed by three stages: (1) 'A progressive thickening of the integument over a rapidly increasing but still defined area;' (2) 'the formation in the rete Malpighii of vesicular cavities containing clear liquid (the "cells" of older authors), in which sooner or later organic or vegetable forms are developed;' (3) 'the impletion of these cavities with pus-corpuscles.'

The process commences in enlargement and generative changes of the cells of the rete, and in an increase of size of the papillæ of the corium, with proliferation of the endothelial elements of its capillary blood-vessels. The lymphatic canaliculi of the corium next become dilated, and in the more vascular parts filled with migratory lymph-corpuscles. About the third day after inoculation, the larger lymph-tracts become distended and filled with spheroidal bodies and branched interlacing filaments like a mycelium, besides conidia free or in an active state of germination. Coincident with these changes, a 'horny transformation' of the middle layer of the epithelial elements of the rete takes place, and the cells nearest the corium undergo active proliferation, while of those immediately beneath the horny layer some begin to dilate into vesicles, and others become flattened so as to form the intervesicular septa. The vesicles next increase in size and number, and ultimately coalesce. They at first contain a clear liquid, but subsequently are found to inclose 'masses of vegetation, similar to those which have been already described in the lymphatic system of the corium; with this difference, that the filaments of which the masses are composed are of such extreme tenuity, and the conidia are so small and numerous, that the whole possesses the characters of zooglæa rather than of mycelium;' the aggregations are produced by the detachment of the conidia from the ends of the filaments. The next step is the infiltration of so much of the rete as lies beneath the horny layer with migratory lymph-corpuscles, which soon find their way to the cavities resulting from the coalescence of the vesicles, and convert them into collections of pus-corpuscles. That migration is the source of these collections, Dr. Klein thinks proved by the fact that a number of amœboid cells may be observed *in transitu*, and that 'the corium itself, before so crowded with these bodies, becomes, as pustulation advances, quite free from them.'

The anatomical characters of the secondary pocks are, the author says, substantially the same as those of the primary ones. The horny transformation is, however, very partial, affecting only a few cells of the middle layer of the rete; and the vesicular cavities are found much nearer the corium. The author notes that 'even in those pocks which exhibited a marked central depression, the most numerous and well-developed vesicles were found towards the centre;' a fact which he considers 'inconsistent with the supposition that the depression is

caused by the disappearance of previously existing vesicles.' BUSHELL ANNINGSO, Cambridge.

SCHÖNEBERG ON A CASE OF APPARENT HERMAPHRODISM.—Dr. Schöneberg of Berlin relates in the *Berliner Klinische Wochenschrift*, July 5, 1875, a case of extreme hypospadias.

The subject was first seen when sixteen years old, for a supposed rupture, consequent on a strain. On examination, a round movable body, of the size of a hazel-nut, somewhat tender, was felt in the right labium: it was recognised as a testicle, and the supposed labia as a divided scrotum. The clitoris (penis) was about five or six centimètres (2 to 2½ inches) long, with a well-formed glans, but no opening. Some distance down and below the penis, the urethral orifice was discovered; still farther back was a shallow depression, not dissimilar to the vaginal orifice, and about five centimètres deep. It was surrounded by a ring, and partly closed by a sort of hymen. No internal genital organs could be made out. The person had been regarded as a girl by the parents. In general conformation of figure, the individual resembled a man rather than a woman. The breasts were not developed; the pelvis was small; the voice was harsh, and the larynx prominent. The parents were incredulous when informed of the real state of things. Four years afterwards, the mother again brought the patient for examination, the male characteristics having become more developed; the beard was beginning to grow. After examination by another medical man, the civil state was finally decided upon.

The person afterwards stated that he had experienced sexual excitement, with a fluid discharge, when in contact with women. W. C. GRIGG, M.D.

MEDICINE.

SOLGER ON THE SIGNIFICANCE OF PROLONGED EXPIRATION, AND ON TENDERNESS ON PERCUSSION.—Dr. Solger, of Reichenhall, writes, in the *Münch Aertzliches Intelligenz-Blatt* for June 22 last (no. 25, Jahrgang 22), that he has noticed that tenderness on percussion in the supraclavicular region is often associated with prolonged expiration, and with enlarged lymphatic glands. He uses a moderate-sized hammer, weighing about one ounce, taking care not to press on the edge of the plessimeter, or to make actual pressure upon enlarged glands. He says percussion with the fingers does not elicit this pain. The enlarged lymphatic glands noticed by him are seldom on the sterno-cleido-mastoid, and those in that situation generally depend on a different cause. The glands in question are found on the anterior border of the trapezius and towards the back of the head, chiefly in the lower part of the neck, especially in the triangle between the trapezius and the sterno-cleido-mastoid, whose base is formed by the scalenus muscle. There the cervical plexus, the sympathetic and vagus nerves, all meet; and the deep lymphatics of the chest, especially those of the pleura, are in relation with the cervical glands. To these glands, and to inflammation in the peribronchial connective tissue, causing compression of the smaller bronchi, he attributes the prolonged expiration heard in the early stages of many lung-diseases. Other theories are discussed, but there is little of novelty to the Eng-

lish reader; and the reporter thinks Dr. Solger not quite accurate in limiting prolonged expiration to the earlier stages only of lung-diseases.

LORENZUTTI ON A CASE OF PULSATING EMPYEMA.—Dr. Lorenzo Lorenzutti relates, in the *Annali Universali di Medicina e Chirurgia* for June, a case of which the following is an abstract.

A man named Pietra Ceconi, aged twenty-seven, a blacksmith, was admitted into hospital on April 28, 1874, suffering from severe dyspnoea, fever, cough with rather copious puriform expectoration, and pain in the left side of the chest, which was increased by touch. He had much night-sweat. The illness had commenced about a month previously. He had led an irregular life, being addicted to drinking and other excesses. His general appearance indicated exhaustion, as if by constant suppuration.

On examining the chest, there was found to be tympanic resonance at the left apex, then absolute dullness down to the costal arch; there was also dullness in the axillary line; behind, there was obscure tympanic resonance in the supraspinous region, and absolute dullness over the remainder of the chest. By auscultation over the region of tympanic clearness, amphoric breathing was heard; over the remainder of the chest there was absence of all respiratory recurrence, with the exception of some moist rhonchus in the lower part posteriorly. The heart was displaced to the left, and its beat was felt in the second intercostal space; from this as far down as the region of liver-dullness was a space about two centimètres wide, which gave a perfectly dull sound in percussion; the heart-sounds were normal. Over this space, and to the left of the sternum, between it and the nipple line, there was noticed frequent pulsation, evidently distinct from the rhythmical beat of the heart. No vocal fremitus nor respiratory movements could be perceived. Measure gave only a difference of two or three centimètres between the two sides, probably in consequence of the oedema which was present. The right lung was healthy, and performed its functions normally. The other organs were healthy; the urine was normal; pulse, 120; respiration, 32. The temperature could not be increased.

On April 30 there was observed a general pulsation synchronous with the heart-beat, affecting the lower two-thirds of the left side of the chest from the sternum to near the vertebral column; but being stronger in the mammary region and along the axillary line. There was also increase of the oedema, and slight increase of the dullness posteriorly.

A consultation was held on May 1, when it was decided that the case was one of empyema; a suspicion, however, was expressed that an aneurism also existed, and it was decided not to operate unless the symptoms became very urgent. Two days later, at another consultation, the patient being worse, an exploratory puncture with Dieulafoy's apparatus was made by Dr. Menzel, when about twenty-one ounces of putrid fluid escaped with force, and the pulsatory movement ceased. More than 100 ounces escaped, and the respiratory movements again became perceptible in the lower intercostal spaces; the respiratory sounds, however, were absent. In the course of a few days the exudation returned, and with it the pulsation; there was also a threatening of perforation at the fifth intercostal space. A drainage-tube was introduced at this point by Dr. Menzel, and was brought out at the sixth space in the axillary line. The cavity of the chest was then washed out daily

for nine days, with a solution of permanganate of potash (1 in 100). The patient died in a state of collapse on May 12.

At the necropsy, the left thoracic cavity was found to contain nothing but the contracted lung, and the air which had entered from without. There were some points of adhesion between the parietal and costal pleura, by easily lacerable bands. The lung was in a state of complete atelectasis at the upper part; inferiorly, it contained a little air. In the right lung there was slight bronchial catarrh; on its surface, especially between the base and the diaphragmatic pleura, were large masses of false membrane. There was recent pericarditis, and the whole heart was covered with a fibrinous investment presenting very fine villi; there was scanty fluid effusion. The muscular substance of the heart was rather yellow, and lacerable. There was slight atheroma of the aortic valves and of the ascending aorta.

The pulsation in this case can be attributed to no other cause than the propagation of the movements of the heart through the fluid. Cases of this kind are not frequent; three are recorded by Niemeyer, Jaccoud, and Roncati. Traube of Berlin says, in the *Berliner Klinische Wochenschrift* for February 12, 1872: 'In the course of last year I have met with two cases, which in some points presented an exception to the ordinary characters of empyema. In both, it could be determined with certainty that the heart was displaced. Nevertheless, there was distinctly perceived on the left side, precisely at the region ordinarily occupied by the heart, a succession of pulsations, synchronous with the systole of that organ.' To explain this, he has recourse to the movement of the heart from right to left, and the relative displacement of the fluid in the same direction. But why does this phenomenon not occur in every case of left pleuritic exudation? Traube asks whether the putridity of the fluid in his two cases may offer an explanation; since this has also been observed by others in the same conditions. He adds that in cases of empyema we see that the costal pleural is destroyed in several places; and without doubt these lesions permit a greater displacement of the fluid. But this does not seem to him to be a sufficient explanation, for the phenomenon under consideration ought to occur more frequently; and he believes that an explanation of the pulsation may be found in the simultaneous presence of a pericardial exudation, which existed in his cases.

In the same periodical, Dr. E. Müller speaks of similar cases, and adds some remarks in the diagnosis. He remarks that aneurisms differ from other pulsating tumours in having perceptible pulsation in a lateral as well as in a vertical direction, while other tumours pulsate only vertically. Empyema, however, may pulsate in all directions; and Müller cites in regard to this the differential diagnostic signs which McDonnell, of Dublin, described in 1844, viz., the dulness over the whole side of the chest, the presence of pulsation only over an external swelling, the absence of murmurs and bruits, and the distinct fluctuation. Müller, however, remarks that, as far as he has been able to observe, the pulsations may extend over the whole chest; that, in cases of aneurism, there may be no murmur or bruit; and he concludes that the diagnostic signs mentioned by McDonnell are unimportant when taken separately, and that their simultaneous pre-

sence may give a greater probability to the diagnosis of pulsating empyema. He adds that in empyema the swelling lies more usually to the left, while aneurism tends to the right; and that empyema produces a pulsating swelling or perforation generally below the fourth rib, a situation where aneurism is rarely met with. He further observes that there is not an absolutely certain diagnostic sign of pulsating empyema. With regard to the cause, he cites the opinion of Kussmaul, who maintains that it is not sufficient for the cardiac pulsations to be transmitted to the external swelling, but they must reach its walls without having lost any of their intensity.

A. HENRY, M.D.

BESNIER ON SUDDEN DEATH DURING THORACENTESIS.—At the meeting of the Société Médicale des Hôpitaux, on June 25, M. Besnier reported the history of a case of sudden death during the operation of thoracentesis. A middle aged lady had suffered during about a fortnight from the signs of a severe pleurisy on the right side, with extensive effusion. There was no cardiac complication; but the general condition of the patient was indifferent, and the fever ran high. It was noticed that the intercostal spaces were unusually tender on the affected side. On puncture with the aspirator, a sanious and extremely offensive liquid was evacuated. Scarcely half-a-pint had been slowly withdrawn when the patient suddenly became extremely pale, her features became fixed, and it was found that the heart had ceased to beat and the opposite lung to breathe. All efforts to restore animation failed. Death had been almost instantaneous. There was no *post mortem* examination.

M. Besnier suggests that the mere pain of the puncture may possibly have reflexly arrested the heart. In enfeebled and very depressed subjects very slight causes may suffice to induce fatal syncope, even if the muscle of the heart be healthy. Bernard, Chossat, Bernstein, and others have shown that in animals even a slight amount of pain may suffice to stop the heart in contraction, particularly if the animal happen to be much enfeebled.

This case, far from furnishing a contra-indication to puncture in thoracentesis, is rather a proof of the danger of delay. The patient was operated upon too late. Her strength had rapidly given way, just as occurs in other forms of gangrenous inflammation.

A. B. DUFFIN, M.D.

JOUSSET ON CHRONIC AORTITIS.—M. Jousset, in a memoir on this disease presented to the Académie des Sciences, divides it into two forms; one painful, known by the name of angina pectoris; and the other very little painful or not at all so, respecting which he lays down the following proposition. 'Chronic aortitis is a common affection; it is habitually mistaken for and confounded with an affection of the heart, or with interstitial nephritis. Chronic aortitis sometimes succeeds acute aortitis. In this case all the causes of the latter affection operate; the use of alcohols, tobacco, coffee and tea are the etiological circumstances which favour the development of chronic aortitis. All the patients in whom I have observed it were gouty or suffered from hæmorrhoids, and were over thirty-five years of age. The principal symptoms are habitual dyspnœa, and from time to time severe attacks of suffocation. These acute attacks have the characteristics of cardiac dyspnœa. The pulse becomes quicker and smaller at the same time, and ends by disappearing.

A lypothimic state is present, with cold perspirations and sometimes complete syncope. During the attacks, expiration is convulsive and prolonged. Insomnia, loss of strength, and anæmia, are the remaining symptoms of aortitis; they lead to cachexia characterised by œdema, albuminous urine, and subdelirium. Death supervenes by asphyxia, syncope, or uræmic accidents. The physical signs are divers modifications in the aortic sounds, the constant formation of a plateau in the sphygmographic traces, and, at an advanced stage, the increase of aortic dulness.'

NOËL GUENEAU DE MUSSY ON WHOOPING-COUGH.—Dr. Noël Gueneau de Mussy (*L'Union Médicale*, July 10), attributes those chronic forms of whooping-cough which persist sometimes for several years, and thus form a remarkable exception to the laws which govern other contagious maladies, to a morbid condition of the bronchial glands. He further considers that in whooping-cough generally the affection of the bronchial glands forms the intermediate link between the congestion of the respiratory mucous membrane which characterises the catarrhal period, and the irritation of the pneumogastric which is the special feature of the spasmodic stage of the disease. In the first stage of whooping-cough the congestion of the mucous membrane is visible in the fauces and throat. The uvula is red and injected, and two bands of rosy red colour are seen running along the inner side of the anterior pillars of the fauces, until they unite at the base of the uvula. The isthmus and pharynx are similarly injected, and the glands of the latter are prominent, giving to the mucous membrane a granular aspect.

This congestion of the throat and fauces presents special features of form, seat, development, and course, which not only distinguish it from the laryngopharyngeal congestions of catarrh and influenza, but characterise it as an exanthem of the mucous membrane, analogous to the exanthemata of cutaneous surfaces. M. Gueneau de Mussy believes that he has fully proved the exanthematous character of certain other disorders, such, for example, as hay fever, the gastric and intestinal disturbance which often accompanies urticaria, and probably the pulmonary and gastric symptoms in measles. Whooping-cough would seem to have its special exanthem also, and to be further characterised by a special tendency to congestion of the bronchial glands, this latter condition being the immediate cause of the spasmodic phenomena.

The existence of the enlarged glands may be detected, as M. Gueneau de Mussy has previously shown, by careful comparative percussion along each side of the upper sternum, with the finger laid parallel to the axis of that bone, and similarly along the spinal groove from the seventh cervical to the fourth or fifth dorsal vertebra. This gives a difference in the percussion note, and in the feeling of elasticity and resistance; while auscultation reveals more feeble but rougher breathing than natural on the side of the affected glands. In well marked cases the respiration may be even of a blowing character. Deficient expansion resulting from the compression of the main bronchus, or one of its chief branches, by the enlarged glands, may be detected by grasping the base of the thorax at each side, while the patient makes a slight effort of coughing.

W. B. CHADLE, M.D.

HART ON BLOODY SWEAT.—In the *Richmond and Louisville Medical Journal* for January, 1875, is an account of a case of bloody sweat, by Dr. W. P. Hart, of Washington, Arkansas. A young unmarried man, twenty-four years of age, of good constitution and character, had been under Dr. M. C. Boyse for some days, feeling stupid, listless and drowsy, with rigors and other feverish symptoms. After five days he was as follows.

On November 5, at 7 A.M., he was stupid, listless and sleepy; pulse 100, respiration $4\frac{1}{2}$ per minute. He complained of soreness and tenderness when pressed over the stomach and bowels; was nauseated and vomited occasionally. He was ordered five drops of turpentine in half an ounce of saturated solution of chlorate of potash every three hours. At 1:30 P.M., the ejections from the stomach, the actions from the bowels, the urine, and the sputa, were all bloody, and the blood was oozing from the pores of the skin all over the body. The points of discharge were thickest over the body, but there were also some over the extremities and the face; his night-clothes were spotted with blood, and the blood not only ran through his night-clothes, but on to the bed-clothes, some of the stains being as large as a quarter of a dollar, and one or two of them as large as a Mexican dollar. He complained of a distressing itching over the body; there was no discoloration of the skin when the blood was removed, but it was rather unnaturally white and clear over the body and extremities. His face was flushed, and the vessels of the face and neck were filled and turgid. The prescription of the morning was continued, and it was ordered that the whole body be anointed with equal portions of turpentine and lard, the counter-irritation over the spine repeated, and cold to the head and warmth to the feet.

On Friday morning, November 6, at 3 A.M., Dr. Hart was called by Dr. Boyse to see the case with him. The patient was stupid and drowsy, but was conscious and rational when fully roused. He complained of nothing except a little oppression about the chest. Pulse 100, and respiration $5\frac{1}{2}$ per minute, deep and full. There was not much heat of skin, no perspiration, no rigors nor chilliness, nor any evidences of periodicity; there was no discoloration of the skin, other than from the bleeding; tongue not much coated, but too large and flabby, and livid, but little cough. Auscultation showed considerable effusion about the right lung. The sputa and vomit, as well as the fæces and urine, were bloody. The hæmorrhage from the surface had decreased since the application of the turpentine. There were considerable twitching and subsultus. The application of turpentine and lard to the surface was continued, and the turpentine emulsion with the saturated solution of the chlorate of potassa internally; he was also ordered twenty drops of tincture of chloride of iron every two hours, and twenty grains of bromide of potassium as often as necessity might require, to quiet nervousness. He had no appetite, but little thirst. At 5 P.M. his pulse was 100; respiration 5 per minute; temperature 100° Fahr.; skin pleasant and soft; the stupor was rather increasing; it was hard to keep him awake long enough to examine him; sensibility was partially destroyed, and he was not conscious of his condition; he had no complaint, except the annoying itching of the skin, which kept him scratching constantly when awake. There was some soreness about the middle lobe of the right

lung, and the sputa were of a mahogany or brick-dust colour. He had vomited twice since 1 P.M., and thrown up what he had eaten, together with some bilious matter, but no blood. The action of the heart was laboured and tumultuous, the first sound being quite loud; the radial pulse was weak but regular. The external and internal remedies were continued.

On November 7, at 8 A.M., the pulse was 96; respiration $4\frac{1}{2}$ per minute; temperature $98\frac{1}{2}^{\circ}$ Fahr. There was a very marked and peculiar churning sound about the heart's action; the mouth and teeth were dry, and sordes was beginning to form; stupor was deepening, and the nervous symptoms were increasing; the kidneys had not acted for eighteen hours. He got up and passed about three half pints of urine, which was turbid and milky; tested by nitric acid and heat, it showed a great quantity of albumen. There was no discharge of blood from any organ, except a few points on the mucous surface of the lower lip. The former treatment was stopped, and first were substituted three grains of sulphate of quinia and one-fiftieth of a grain of strychnia every three hours, alternated with two drachms of brandy in a little lemonade. At 10 A.M. the fingers and toes were cool, the pulse more feeble, and stupor deepening. The pulse was faster when he was sleeping by eight beats per minute than when he was awake, and the respiration slower by one per minute when sleeping than when aroused. Reaction came on by one o'clock, and at 5 P.M. there was considerable excitement. Pulse 110, firm and full; respiration 6 per minute; temperature 101° Fahr. He passed about one pint of turbid urine; there was no action from the bowels. He lay in a semi-comatose state; when aroused he was listless and incoherent. He was ordered, in addition to the former prescription, half an ounce of saturated solution of chlorate of potassa every three hours.

November 8, 8 A.M.—The nervous twitching and subsultus were not so great: stupor about the same; the face was flushed, and the vessels of the face and neck were full and distended. There were a number of pimples or elevations on the forehead resembling mosquito-bites. The blood was oozing from the mucous surface of the lower lip at several points; the teeth, gums, and tongue were dry, but the tongue was not so large and livid. Pulse 100, soft, regular, and of good volume; respiration 7 per minute; the air entered the lungs well; temperature 100° Fahr.; skin soft and pleasant. He had not vomited during the night; the bowels had acted three times, thin and watery, and coloured with the iron; he passed three or four pints of turbid-looking urine of a strong ammoniacal odour. He complained of nothing. The treatment was continued. The body was ordered to be anointed morning and evening with the turpentine and lard, with a few drops of carbolic acid added. He called for the application to allay the itching of the skin. At 5 P.M. there was a slight increase of fever. Pulse 105; respiration 6 per minute; temperature 101° Fahr.

November 9, 8 A.M.—Pulse 90, soft and regular; respiration 5 per minute; temperature 100° Fahr. There was not so much stupor; the nervousness was not so great. The bowels and kidneys were acting well; the urine was returning to its natural colour. He bled half a pint from the arm, which had relieved the turgid vessels and flushed face. No muttering or delirium. At 5 P.M. the patient appeared to be better; the stupor was passing off; the twitching and

subsultus were almost entirely relieved. Pulse 96, soft and regular, and of good volume; respiration 8 per minute; temperature 100° Fahr. The kidneys were acting sufficiently, and the urine was almost natural in colour.

November 10, 8 A.M.—The patient's condition was less encouraging than last evening. Pulse 94, small, and feeble; respiration 7 per minute; temperature 100° Fahr. The stupor was about the same; he had vomited three times, and thrown up a dark grumous matter resembling decomposed blood; there was no secretion about the mouth, and he had considerable thirst. He had had two bloody actions from the bowels, but they were not swollen or tender under pressure; the kidneys had acted twice freely and the urine was of good colour; the urine contained but little albumen. All treatment was stopped, and the bowels ordered to be moved with castor-oil to rid them of decomposed blood or other substances that might act as poisons or irritants. At 5 P.M. the pulse was more feeble, the respiration and temperature not changed. The bowels were moved three times, the last action being much better than the first two; then he refused nourishment; he had great thirst, and there was a cadaveric appearance about the face and extremities. The iron, quinine, and strychnine were resumed at one o'clock, with as much brandy as he would take.

November 11, 8 A.M.—The patient was not so stupid. Pulse 96, volume small and weak; respiration 7 per minute, not so deep and sighing; temperature 99° Fahr. The face, gums, and lips were blanched and anæmic. He had had two small grumous ejections from the stomach; and three large bloody actions from the bowels. The kidneys were performing their function very well. There were no fulness, hardness, or soreness about the bowels. He had considerable nervousness and subsultus. He was anxious and concerned about his condition, and refused all nourishment, and had much thirst. The treatment was continued, with twenty-five drops of Thayer's fluid extract of ergot every three hours.

November 12, 8 A.M.—Pulse 84, small and feeble; respiration 7 per minute; temperature 98° Fahr. The stupor was not so great; he was more easily aroused; the extremities were cool. He complained of weakness and prostration. The blanched anæmic appearance was more marked. The stomach ejected everything, even water. He had two small bloody actions from the bowels; the kidneys were acting pretty well. All treatment was stopped, and one-eighth of a grain of sulphate of morphia was ordered to try to allay the irritation of the stomach, also a mustard plaster over the epigastric region. At 5 P.M. the patient had rested, and expressed himself as feeling better. He had not vomited since he took the first potion of morphia, which had not increased the stupor, but he was more wakeful. He had taken more nourishment than during any day of his sickness, and had retained it. Pulse 96, respiration 8 per minute, temperature 100° Fahr. He was taking milk-punch, which he relished. No medicine was given during the night.

November 13, 8 A.M.—The patient was quiet, with very little nervousness or stupor, rational; pulse 99, respiration 7 per minute, temperature 99° Fahr. He vomited four times, the ejections being tinged with bile; the bowels acted twice freely, mostly of decomposed blood; the kidneys were acting freely. The urine was of good colour. The

anæmic and œdemic appearance was more marked and he was growing weaker. He refused nourishment. The mouth was very dry and the teeth coated with sordes. He had great thirst, but he could not retain water, brandy, or anything else without its nauseating him. A fly-blisters, measuring four by six inches, was ordered and applied over the stomach.

On November 14 he was steadily declining under the drain from the stomach and bowels. He looked as though his body were completely drained of blood, and presented the appearance more of statuary than a living being. The kidneys had ceased to secrete; he vomited almost instantly everything taken into the stomach. His restlessness and suffering were intense until 4 A.M. of the 16th, at which time he expired.

The privilege of making a *post mortem* examination was positively refused by the friends of the deceased.

TYSON ON BRIGHT'S DISEASE.—In the *Philadelphia Medical Times* for July 10, Dr. Tyson takes up the subject of Bright's diseases of the kidneys and discusses at much length their treatment. He prefaces his remarks by giving a brief review of the chief forms of the disease so as to give definiteness to his remarks on treatment. Acute nephritis he regards as being tubal in its nature; and the chronic forms he gives, as the large white kidney with its tendency to dropsy; the gouty or cirrhotic form, with its absence of albuminuria; and thirdly, the amyloid, or rather albuminoid kidney, associated with exhausting drains. In the acute form he advocates external warmth, with cups, dry or wet, over the loins if suppression of urine be present. The supplementary action of the skin can be utilised, and to excite cutaneous action he prefers the union of nitrous ether and ipecacuanha, with the warm or cold pack, preferring the latter. Purgatives he employs chiefly to expedite the action of other measures. In uræmic coma, two drops of croton oil upon the tongue often do good service. Diuretics he criticises, taking up the position that increased secretion is generally associated with increased flow of blood to the kidneys. He thinks the great matter is the selection of the diuretic, and prefers digitalis, from its effects in increasing the blood-pressure, salines, and diluent drinks. He uses digitalis freely in these cases, combining it with the citrate and acetate of potash. The washing out of the tubules by these measures restores the kidneys. The external use of digitalis in severe cases is insisted upon.

In the treatment of chronic Bright's disease the chief indications are, (1) to improve the quality of the blood, which is anæmic and laden with urea and allied impurities; and (2) to combat the different complications which threaten life. For the first end, iron with quinine and strychnine is to be used freely, the best forms being Basham's mixture, or the tincture of the chloride with nitrous ether. As to food, an excess of nitrogen is to be avoided, as tasking the kidneys too much, and vegetables and milk should form the staple diet. The necessity for woollen garments next the skin is insisted upon, and the general avoidance of cold is advocated. There is no doubt that residence in a warm and equable climate is often of signal service in cases of chronic Bright's disease; and cases are reported where the albumen has disappeared, and recovery apparently taken place in a warm climate, where the pre-

vious duration was such as to make the recovery highly improbable. By attention to these matters, he thinks, in the form of contracted kidney, life may only be limited by its natural termination; but a brief carelessness may quickly lead to a fatal result. When there is any dropsy in any of the forms, but especially in the large white kidney, action upon the skin and purgatives are called for. The depressing effect of the hot baths during the bath may be obviated by tying a wet handkerchief round the head. As to purgatives, they relieve the dropsy, but are exhausting if continued. Elaterium is the cathartic preferred. When the dropsy cannot be subdued by these measures, punctures are indicated. The use of calomel is objected to. 'It requires to be mentioned only to be deprecated.' Contrary to what is ordinarily held, the use of opium in full doses, after the example of Dr. Loomis, of New York, is advocated; not, however, without reservation, and with mention of chloral and the bromides.

WEIR MITCHELL ON REST IN NERVOUS DISEASE.—Under this heading, Dr. S. Weir Mitchell contributes an article that forms the fourth number of Dr. Seguin's 'Series of American Clinical Lectures.' In order to get the full benefit of this particular treatment of the disease, it is often necessary to put the patient to bed, and prevent, as far as possible, all voluntary effort. The effect is much the same as when a fractured limb is placed in splints. The muscles become flabby, the vessels lose their tone, the skin suffers in its nutrition, the joints become stiff, and for a time the function of the part is lost until the effects of the rest are counteracted by stimulated activity. But when the whole body is permitted thus to remain inactive, the effects are more general and serious. The appetite is lessened, the digestion may suffer, the bowels become constipated, the circulation enfeebled. The temperature falls and the pulse becomes 'a third slower.' Another consequence to which allusion is made as a serious consideration is that this inactivity, at first enforced, may in the end become a permanent condition. This is especially true of women, who are very apt to become bedridden under these circumstances.

The first class of cases mentioned, for which the treatment by mechanical rest is advised, consists of those in which pain is the most prominent symptom—the neuralgias. The fact is pointed out that when a nervous centre is in a morbidly irritable state, the impressions produced by normal functional activity become converted into sensations of pain.

The author mentions a rare form of writer's cramp, which is attended with pain, and which may always be relieved by rest. Next, a variety of affections of the central nervous system is mentioned, in which this treatment is regarded as exceedingly important. A disorder peculiar to women is described, which is characterised by a condition of defective nutrition, in which a painful sense of fatigue is the most prominent symptom. Besides, the patient has a low temperature, the pulse is usually accelerated, more or less anæmia is present, with an increased proportion of white blood corpuscles. Every attempt at exertion, whether mental or physical, immediately occasions an extreme feeling of weariness, so that ultimately the power of exertion is almost entirely lost. The treatment consisted in keeping the patient in bed, and prohibition of the slightest exertion. At first the patient was not even allowed to turn herself

in bed, and was fed chiefly by the rectum. To counteract the effect of the loss of normal muscular exercise upon the circulation, etc., recourse was had to massage and faradism of the muscles.

Allusion is also made to the use of rest in the early stages of spinal congestion, meningitis and chronic myelitis, but especially in locomotor ataxia. Mitchell was first led to adopt this treatment in the latter disease, in consequence of seeing several perfect recoveries in the painful stage of the affection, following fracture of a limb, compelling the patient to a season of quiet in bed.

J. MILNER FOTHERGILL, M.D.

REISLAND ON THE TREATMENT OF LEAD COLIC BY LARGE ENEMATA OF LUKEWARM WATER.—Dr. Reisland, of Wurzen in Saxony, writes to the *Berliner Klinische Wochenschrift* of May 24, 1875, strongly recommending the use of large clysters of lukewarm water in lead colic and constipation. He used an irrigator, and introduced four and a half litres (nearly a gallon) of water on one occasion, and about two-thirds of this quantity two or three times after, in the same patient, a plumber, aged fifty. The results were relief from pain, and the passage of a large quantity of fæces. [As, however, opium had previously been given, and castor-oil was administered afterwards, the case can hardly be quoted as a pure example of the success of the method recommended. The reporter believes that the use of enemata in acute plumbism is in vogue in most of the metropolitan hospitals. The case, however, deserves note, as showing that very large quantities of fluid can often be introduced into the bowel without injury, and sometimes with great relief symptoms.—*Rep.*] W. B. WOODMAN, M.D.

BUSENLECHNER ON [?] IDIOPATHIC CRAMP OF THE MUSCLES OF THE UPPER EXTREMITIES TREATED WITH QUININE.—The Vienna *Medicinisch-Chirurgisches Centralblatt* of April 30, 1875 (no. 18, Jahrg. 10) opens with a paper on the following case. A married woman, aged twenty-four years, of delicate build, and pale skin, suckling an infant eight months old, had suffered for some days from slight bronchial catarrh, and severe headache; intensified, as common in such cases, by attacks of coughing. Vertigo, tired sensations in the legs, and tremblings in the arms, were also felt by her. For all these she used domestic remedies, but on being attacked with violent cramp in the arms she consulted Dr. Busenlechner, of Hernals, near Vienna. He found her flushed in the face, sweating profusely all over, and all the muscles of both upper extremities strongly contracted and hard as a board. The pain was described as unbearable. Warmth and friction, with stimulating liniments had failed. Satisfied from careful examination that there were no symptoms of any very grave lesion of the brain or spinal cord, he prescribed a full dose of chloral-hydrate. This relieved, and for some days she was free from cramps. Then they returned, and the chloral failed—so did morphia—both giving only very temporary relief. Castoreum was quite useless. Subcutaneous injections were also of only temporary benefit. Cross-questioning elicited the fact that the cramps were slight in the mornings, unbearable in the afternoons. He gave her five grains of quinine, and for eight days she was quite free from pain. Then tremors began in the fingers—the way the cramps always came on—and he gave her another dose of quinine.

There was no relapse at the end of six weeks. Dr. Busenlechner dismisses the idea of intermittent fever, as the spleen was not enlarged. Was it due, he asks, to inflammation of the neurilemma of the nerves of the muscles themselves? or to causes, little understood, like those inducing migraine, in which also quinine proves prophylactic? Or was it a psychical affection, partly from lactation or from the bronchial-catarrh causing irritation of the nerve-centres in a reflex manner? In any case, both physician and patient were well satisfied with the effects of quinine.

STRAUSS ON CONTRACTIONS.—In a thesis (*Archives Générales de Médecine*, July, 1875), M. Strauss speaks of tonic persistent and involuntary contractions of one or several muscles of the animal system.

Different chapters are devoted to the study (1) of contractions connected with the diseases of the cerebro-spinal axis; (2) of hysterical contractions; (3) of the contractions connected with the diseases of the muscles or nerves, partial contractions; (4) of the reflex contractions; (5) of contractions in diseases of poisoning; (6) of tetanus. In diseases of the encephalon, precocious contractions are connected with a deep lesion attacking the excitable parts (mesocephale), or with a superficial lesion of the brain, or meninges.

The rotation of the head and conjugate deviation of the eyes are an accident of contraction. Tardy contractions succeed the lesions which attack the internal capsule and bring on secondary degeneration of the medulla.

The spinal affections which are accompanied by contractions are those which give rise to a change in the lateral funiculi, either primary or secondary; amyotrophic lateral sclerosis (Charcot); transverse primitive or consecutive myelitis; sclerosis *en plaques*, etc.

Hysterical contractions, whether general or local, have no known lesion; in one case, however, M. Charcot found a symmetrical sclerosis of the lateral funiculi, which would approximate to the hysterical contraction of the special forms. M. Lasègue has shown, especially in the localised forms, that pain may be the occasional cause of an hysterical contraction, which may thus be approximated to the reflex contractions. Contractions from myositis are rare, and so are ischæmic contractions in the human subject. Amongst partial contractions, the most important to be aware of are those of the diaphragm, spasm of the glottis, and contraction of the muscles of the face. Reflex contractions are more particularly observed after articular affections, functional spasms (Duchenne), nodular rheumatism, conjunctivitis, fissures, etc. Contractions in diseases of poisoning supervene in ergotism, acrodynia, and scurvy. Tetanus is referred by M. Strauss to a transitory disturbance of the medullary circulation.

RENDU ON SPONTANEOUS ANÆSTHESIAE.—Those anæsthesiæ which are not artificially induced, and which are due in the first instance to a spontaneous modification of the general health, may be classed under the name of spontaneous anæsthesiæ. Anæsthesiæ may have reference to a change in the receptor system or sensorium of the medulla, of the conductor nerves or the peripheric extremities; but the origin of these last anæsthesiæ are entirely unknown. With reference to a certain number of affections

it is difficult to say whether the anæsthesia relates to a change in the peripheric nerves or the nerve-axis (saturine anæsthesia, etc.). Disturbances of the circulation would have a great influence on the production of anæsthesia. The anæsthesia, according to an analysis of M. Rendu's work, published in the *Archives Générales de Médecine* for July, 1875, are studied in it successively in cerebral diseases, mental affections, special maladies, lesions of the nerves, neuroses, chronic poisonings, acute and chronic diseases, and skin-diseases. The progress of anæsthesia and their different nodalities are studied by M. Rendu in a very complete manner in these different classes of diseases. But, throughout these expositions, the writer is guided by one leading idea, which is, to establish the relative importance of the different sources of cerebral, medullary, and peripheric anæsthesia, and to show to which of these causes each of the anæsthesia passed in review belongs. In peripheric anæsthesia a nerve is diseased; the path of transmission of peripheric impressions towards the encephalon is interrupted, the whole region to which the nerve is distributed is struck with insensibility, which is circumscribed and distributed without any symmetry on the surface of the skin. In diseases of the medulla, general sensibility is found to be totally abolished in acute myelitis progressing rapidly upwards; partially affected in circumscribed myelitis; and scarcely changed at all in certain forms of diffused myelitis. Whenever the spinal lesion implicates the posterior portions of the grey axis, the sensory disturbances become predominant, while the changes limited to the anterior portions of the nervous centre leave the peripheric insensibility intact or nearly so. In diseases of the encephalon, the analysis of facts has allowed the circumscription of one spot of which the lesion brings on hemi-anæsthesia, which is the posterior portion of the foot of the radiating corona of Reil. However in a great many cerebral affections, affections arising from diffuse lesions, and mental affections, it is impossible to explain the production of anæsthesia; it would be easy to explain them if the existence of sensitive centres at the surface of the encephalon could be discovered.

DUJARDIN-BEAUMETZ ON THE EXPECTANT METHOD OF TREATMENT OF ACUTE ARTICULAR RHEUMATISM.—At the meeting of the Paris Academy of Sciences, on June 14, M. Dujardin-Beaumetz referred to the continuous increase of the partisans of the expectant method in the treatment of acute articular rheumatism. For a long time, as M. Fonsagrives points out, 'Doctor Six-weeks' has been esteemed as the best doctor for rheumatism, although M. Fonsagrives himself warmly contests the doctrine of expectation in rheumatism. Gouzé and Dewalsche, who were the first to maintain, in 1853, that the expectant treatment was the best for this disease, never imagined that their doctrine would obtain such a success.

M. Dujardin-Beaumetz (*Bulletin Général de Thérapeutique*, June 30, 1875) reviews the principal arguments brought forward by the advocates of expectation, arguments which may be classed under three principal heads: 1. Ignorance of the nature of rheumatism, which is antagonistic to the formulation of a rational plan of therapeutics: 2. The connexion which has been established between gout and rheumatism, and the consequences which have thence been deduced, that it is dangerous to cure attacks

of rheumatism, and that drugs may be the cause of serious complications: 3. That finally, medicines have no influence on the duration of acute articular rheumatism. M. Dujardin-Beaumetz examines and discusses each of these arguments. To the first, he answers that rheumatism is not the only disease in this predicament; we do not know the nature of intermission, still we combat it by sulphate of quinine. Still farther, thanks to the progress of experimental therapeutics, we can address ourselves more specially to certain groups of symptoms which appear to predominate in rheumatism; and all the drugs which have a markedly depressing action on the pulse and the temperature seem to exercise a favourable action in this disease. It is thus that veratrine, colchicum, quinine, trimethylamine, the cyanides, and even cold baths seem to exercise an action on rheumatism. Therapeutics have therefore made more rational progress in the last few years. To the second argument, it is easy to answer that no recorded fact has as yet shown that a reasonable amount of medication has ever been prejudicial, either by increasing the attacks or by producing serious complications. As to the third argument, it is much more difficult to give any certain proof of the action of medicines on the duration of rheumatism. Legroux regretted, in 1850, the absence of reliable statistics on this point; and M. Dujardin-Beaumetz expresses similar regret at the present moment.

With regard to the duration of rheumatism, M. Dujardin-Beaumetz divides acute rheumatic cases into three groups; in the first, he classes the 'rheumatic attacks which only last a week; in the second, those which, on the contrary, resisting all medication, last between one and two months; finally, in the third group, he places the average rheumatism, or that which lasts from three to four weeks. If, from the commencement of the rheumatic attack, there were positive signs which allowed a certain prognosis, the question would be most easily determined; but unfortunately it is not so, and, notwithstanding an assemblage of symptoms based on the intensity of the fever, the mobility of the pains, and the seat of the rheumatism, nothing positive respecting its duration can be affirmed. However, when the patient has been under careful observation for some days, when, the rheumatism having lasted a week, the fever is still very high and the pains acute, it may be concluded that it is a case either of persistent rheumatism or rheumatism of average duration; and if active medication be then resorted to, such as the administration of quinine, veratrine, colchicum, trimethylamine, the cyanides or other remedies, the rheumatism will, in a great number of cases, be arrested in its progress, stop short, and be cured in a relatively short space of time. But duration is not the only element in rheumatism; pain is a no less important one, and also demands active therapeutic measures.

Notwithstanding all these reasons, however, M. Dujardin-Beaumetz establishes that the medicinal means for the treatment of acute articular rheumatism accumulate continuously, and that each, vaunted in its turn, is afterwards pitilessly rejected. These infatuations and dislikes alike arise from too much being required from these proposed medicines, they being required to cure all cases. Never being applied to the primary cause of the disease which escapes us, the appropriate medicines can only reach one group of more or less predominant symptoms. Here lies the cause of the successes and failures;

thence the fact that there is no specific for acute articular rheumatism. In conclusion, M. Dujardin-Beaumez shows that the partisans of the expectant system do not bring forward any veritably scientific reason in support of their doctrine, whilst, on the contrary, their adversaries can produce a large number of facts in which rational medication has abridged the duration and lessened the gravity of the rheumatic attack. *

DISEASES OF CHILDREN.

VILLENEUVE ON A CASE OF PUNCTURE OF THE PERICARDIUM.—M. Villeneuve gives the following details of a case of this kind in the *Marseille Medical*.

On May 17, 1873, I was called by a colleague to see a child five years and a half old suffering from pericarditis. I found the little patient in a very serious state; his face was swollen and mottled, his eyelids swollen, his lips blue and cold, the pulse too weak to be counted. The lower extremities were cold and cedematous up to the thighs; the scrotum was infiltrated. A very marked arching, of the size of the hand, was remarked at the precordial region. This arching was distinctly fluctuating, and presented an undulating movement corresponding with the respiration. This was short and strongly whistling. Auscultation of the anterior portion of the chest gave no results. Neither respiratory murmur nor heart-sound could be heard. Nothing could be heard at the posterior part of the thorax, but the resonance of the whistling respiration and some sibilant râles. According to the account given by the parents of the child, this state was the consequence of a fall on the chest which had occurred two months previously, and after which he had begun to suffer from dyspnoea and swelling of the legs. The treatment adopted was diuretic drinks, and the application of seven leeches to the precordial region, followed by seven blisters placed one after another on the same place. No improvement, however, resulted from this treatment, and I was called in consultation. I believed the little patient to be dying, and only likely to last a few hours. Not knowing what plan of medical treatment to adopt, I resolved to try what surgery could do. With the consent of the parents, to whom I explained that this expedient was but a forlorn hope, I applied M. Dreulafoy's aspirator at the most projecting point of the tumour, and where it was most fluctuating, and thus removed, by the help of a preliminary vacuum, two syringe-fulls of a perfectly transparent lemon-coloured fluid. When I had removed the cannula, the small wound remained open, and a somewhat powerful jet of liquid spurted out of the opening. This arose in consequence of the internal wall of the cavity having been very much thinned by the repeated applications of blisters. Very much annoyed by this accident, I quickly put my finger on the opening, and had some difficulty in closing it with cross-pieces of diachylon plaster, because the child, who began to recover from the asphyxial stupor, cried, threw himself about, and caused a small amount of serous matter to exude from the puncture at every movement. I completed the dressing by a compress, held in its place by a pledget of lint, and a small body-bandage. I could then, by applying the ear to the chest, hear the pulsations of the heart, which were still confused

and tumultuous. The pulse allowed me to count 160 pulsations in the minute; the symptoms of asphyxia also gradually improved; and I left my little patient in a very satisfactory state. From that time forward the improvement continued; the cedema gradually decreased, the appetite returned, and the pulse became regular. But it is a remarkable fact that the puncture made by the trocar did not close, and that the pericardial serosity continued to flow copiously and even in jets, at every dressing, which was done twice in the twenty-four hours. After some days the serosity became less transparent, thicker, and, finally, quite purulent; it continued to flow copiously during five months. The patient, however, left his bed, walked, and recovered his appetite. About that time an abscess formed at the level of the wound, and was opened. Only healthy pus escaped from it. This abscess healed up, and gradually the pericardial fistula only yielded a smaller and smaller quantity of pus until the sixth month after the operation, when it closed up definitively. From that time the child regained health, and he is now, as far as can be ascertained, perfectly well.

I should like to draw the attention of my colleagues to the rarity of facts of this kind, and especially to the persistent continuance of the fistula, nearly six months after the operation. Finally, I beg my colleagues to be very careful to ascertain the exact condition of the heart, which appeared to me to be perfectly healthy, and gave no indications from auscultation.

MEYER ON THE USE OF TEPID BATHS IN THE FEBRILE DISORDERS OF INFANTS.—Dr. Meyer, in the *Deutsches Archiv für Klinische Medizin*, March 8, 1875, gives the results of some experience in the application of this treatment to infants under a year old. In two cases of decided pneumonia in children of seven and eight months old, he gave baths at 84° and 80° Fahr. In febrile affections with digestive disturbances he gave to infants under two months old baths varying from 93° to 79° Fahr.

A case related by Dr. Lutz, concerning an infant twenty-eight days old who was attacked by ambulatory erysipelas, deserves careful consideration, for it is certain that in this instance the cure was due to cold baths. The author adds that he has seen a child of three weeks old submitted to the same treatment recover from a very serious attack of ambulatory erysipelas. On the second day the day temperature was 104.36°, the night 105.6°; a bath of 89.6° was given. After the bath the temperature gradually diminished, and the child recovered after the appearance of a subcutaneous phlegmonous abscess.

Erysipelas erraticum belongs to those morbid forms which are successfully treated by baths. The temperature of the bath should be low in proportion to the infancy of the patient.

This treatment is also of the greatest utility in the gastro-intestinal febrile catarrh, which often appertains to infectious diseases, and, in Dr. Meyer's opinion, arises in infants from typhic virus or some analogous poison. Thus he saw an infant three months old, whose brother, fourteen months old, had been successfully treated for acute typhoid fever by cold baths and quinine, and while there was another case of the same disease in the same house, suddenly attacked in the night with gastro-enteritis, and the next day show a central temperature of 107.6°. Dr.

Meyer was only called in a short time before death, and could do nothing for the child, whose case he quotes only to show the relationship between typhus and what is supposed to be idiopathic gastro-enteritis.

As collapse is rapid in children, and the cooling of the extremities very quick, no notice is taken of the elevation of the temperature when the thermometer is not used. These very rapid gastro-enteritis are essentially different from those which are connected with digestive disturbances, and to which a good hygienic treatment suffices to render the prognosis favourable. Rilliet and Barthez have demonstrated that the intestinal lesions of infantile dothineritis are much less marked than they are in the adult. On the other hand, vomitings in infantile typhoid fever are very frequent, and thus much of infantile gastro-intestinal catarrh may depend on typhic infection, in the same way as Liebermann and Hagenbach admit to be the case in the febrile catarrh of adults. However, Dr. Meyer reproaches himself with not having, up to the present time, endeavoured to ascertain if in these circumstances the spleen was enlarged. He quotes a case in which treatment by cold baths was employed. Collapse, imminent death, vomitings, and diarrhoea, were present. The rectal temperature was $104^{\circ}9'$. A bath, with an initial temperature of 95° , gradually lowered to 86° , was given for eight minutes. The child was quieter after the first bath. Directions were given to take the rectal temperature every three hours, and to give a fresh bath so soon as it exceeded $103^{\circ}1'$. It only reached that height once after the second day. After the first bath the moanings ceased, and the child, who until that time had refused all food, began to take it, and finally recovered. In a similar case there were convulsions, after which the rectal temperature rose to $104^{\circ}5'$. The bath was cooled from $93^{\circ}2'$ to $80^{\circ}6'$, and then repeated; the first day the temperature keeping itself above $103^{\circ}1'$. The next day the temperature was normal, and recovery ensued. These cases encourage Dr. Meyer to employ baths so soon as the temperature exceeds $103^{\circ}1'$, in dothineritis, pneumonia, scarlatina, erysipelas, in fact, in all diseases showing a high temperature. The number of cases will certainly increase if, whilst combating the gastro-intestinal symptoms, means can be taken to lower the fever. How young soever the children may be, the cold baths may be used; but, unless there be precise indication to the contrary, the temperature of the bath should not fall below 84° .

JACOBI ON THE TREATMENT OF ACUTE RHEUMATISM IN INFANCY AND CHILDHOOD.—In one of a series of clinical lectures, Dr. A. Jacobi treats of the occurrence of rheumatism among children, which has been regarded by many as unfrequent. He, however, believes the affection to be quite common, but often overlooked. After a full discussion of the diagnosis and pathology of the disease, he devotes several pages to the various modes of treatment adapted to the various symptoms. Rest for the joints in a semi-flexed position, the application of ice in the acute stage, and hot poultices when the temperature has been reduced, in order to hasten the absorption of the effusion, are some of the remedies to be first applied. Later, when it may be supposed that no further absorption of effusion will take place, gentle compression by collodion, flannel bandages, cotton with linen bandages, elastic bandages, and plaster

of Paris, will be found serviceable. Puncture of the joint and the use of the aspirator cannot be objected to when the contents are purulent, and may sometimes be used in copious serous effusion. The mild galvanic current also hastens absorption. The usual anodynes are to be used locally for the relief of pain. Internally, to relieve vascular pressure, aconite, digitalis, veratrum, colchicum, or quinia is administered. The latter, Dr. Jacobi thinks of great value. The bisulphate of muriate may be given in a dose of five grains once, twice, or three times daily to a child of one or two years. Where the stomach rebels against the remedy, the rectum may take its place. The lecture concludes with a few remarks on the choreic manifestations of rheumatism, in which ergot in large doses is recommended.

BUDIN ON PULMONARY APOPLEXY IN AN INFANT.—M. Budin, in the *Annales de Gynéc.*, August, 1875, records the case of a single woman delivered naturally of a healthy living foetus, when on the third day œdema of the lower extremities, with blueness and coldness of the feet, were observed, together with rapidity of respiration. No abnormal symptom was discovered on auscultation and percussion of the chest. The child died the next day. At the *post mortem* examination, both lungs were found to be the subject of multiple hæmorrhagic infiltrations. No other lesions were detected. No cause for the condition could be assigned.

[The question of attempted suffocation seems to be not improbable.—*Rep.*]

ARTHUR W. EDIS, M.D.

SURGERY.

MUSCROFT ON A CASE OF SIMULATED TETANUS. In the *Cincinnati Clinic* of June 12, Dr. C. S. Muscroft relates the following case of simulated tetanus.

David Frick, aged fifteen, American, of German descent, was employed in a furniture factory. He had always been healthy and strong, with no tendency to nervous diseases. His father died suddenly six years ago of tetanus, with no injury or any other cause to account for the disease than a simple cold. His mother is still living and quite healthy. The patient was brought into hospital at five o'clock P.M., April 6th; he was quite conscious and rational at the time, so that he was able to give his own history. He reported that about an hour previously, while oiling a frizzling machine at the factory, his right arm was caught by the revolving bit of the machine, carrying his body around with its rotations and inflicting several severe wounds to his arm and chest. The body was whirled round four or five times before it was released, and was thrown off about twenty feet against a wall. The patient was unconscious for a few moments, but soon came too. Hæmorrhage from the wounds was very profuse, so that the attending physician, Dr. Cassat, was obliged to tie the radial and anterior interosseous arteries and several smaller muscular branches. The edges of the wounds were also brought together, as best possible in their condition. Stimulants were given to the patient in large quantities.

He was a moderately well nourished and muscular boy, of rather dark complexion, brown hair and eyes. Pulse 102. Skin moist and warm. He complained of great thirst.

When admitted, the patient was very noisy and obstreperous, refusing to stay in hospital, and demanding continuously to go home and see his mother. He acted very much like one partially under the influence of alcohol.

On examination, there was found on the right arm an irregular lacerated wound, extending from two inches below the elbow to the base of the thumb and into the palm of the hand about one and a-half inches. It presented the appearance of having been gouged out by a sharp instrument, leaving a considerable loss of substance. The wound was quite deep, reaching in some places down to the bones. On the right side of the chest there was found another deep and irregular lacerated wound, running in a curved line from one inch anterior to the axillary line downwards and backwards about six inches, and corresponding in position to that of the fifth and sixth ribs. The ribs were not exposed or injured, nor were there any symptoms present pointing to injury of the pleura or lungs. Besides the wounds mentioned, there were excoriations over the abdomen and upper portion of the right arm. Hæmorrhage from the wounds had not quite ceased, but was readily controlled by cold applications.

Dr. Muscroft ordered the arm to be placed on a firm support, and cold water to be applied to it and the wound on the chest. The patient very soon became quiet, and fell asleep; and seemed to rest well until eight P.M., when he began to be very restless and noisy. At nine o'clock he vomited a large quantity of whisky, after which he again remained quiet until ten o'clock. He now began to toss and strike about in bed, crying out loudly at times. Shortly afterwards he was seized with convulsions, which, as the nurse reported, were so severe that it required several men to retain him in bed. These convulsions recurred at intervals of about twenty minutes, becoming, however, gradually less violent and more tonic.

The patient by this time was totally unconscious and insensible of what was going on. This state of affairs continued until twelve o'clock at night, when the resident physician found the boy in the following condition. Respiration rapid, irregular, and quite stertorous; all muscles in a rigid state of contraction; opisthotonos and trismus well marked; pupils widely dilated and fixed; some divergent strabismus of the eyes; great pallor of the face; pulse rapid, full and strong, slightly irregular at times; body warm and covered with profuse perspiration. The tongue was protruded between the teeth. This attack lasted about five minutes, after which the muscles were somewhat, but not entirely, relaxed. At intervals of from ten to twenty minutes, the same train of symptoms recurred during the remainder of the night with more or less severity. Urine was passed in bed involuntarily.

At 8 A.M. on April 7, as attacks were occurring with more frequency, Dr. Muscroft ordered inhalations of chloroform during the paroxysms, and the hypodermic injection of one-eighth of a grain of morphia every two or three hours, as symptoms demanded. The effect of the inhalation of chloroform was most immediate and marked. The pulse became stronger and less frequent, the muscles relaxed, breathing became quiet and regular. The pupils were observed to contract almost instantaneously after the first few whiffs, and reacted promptly to stimulus of light in a very few minutes. These inhalations were repeated as often as spasms occurred, and were continued with the injections of morphia

during the day and following night, after which morphia was given alone. The effect of the chloroform was to check the convulsions, though the fingers remained clutched, and the lower limbs were rigid. The vomiting continued.

On the 8th the respirations were laboured and irregular; in the evening the muscles were much less rigid, and the morphia was continued. The improvement steadily persisted, and the last observation was made on—

April 11.—Pulse 84, temperature 97½°. He was resting very quietly; the wounds were suppurating and healing well. From this day the patient improved rapidly, no untoward symptoms having occurred.

Dr. Muscroft regards the very violent symptoms in this case as having been produced by the effect of the severe injury, causing, in the first place, great shock and insensibility, and, in the second place, the great prostration, with excitement to the nervous system, which was mainly due to fright. The symptoms were also very much aggravated by his having taken large quantities of whisky immediately after the injury, the amount being about twelve ounces. The plan of treatment adopted was for the purpose of quieting the brain and nervous system until healthy nutrition was restored and the great mental impression of fear relieved. There is no doubt, if the patient had not been kept constantly under the sedative influence of chloroform and morphia until the tetanic convulsions ceased, that he would have died. This patient was discharged from the hospital in the end of May, but the arm was not quite well.

O'MEAGHER ON PISTOL-SHOT WOUND OF THE ABDOMEN.—In the *New York Medical Record* of July 17 is given the following account of a penetrating pistol-shot wound of abdomen, by Dr. William O'Meagher, where the bullet passed *per rectum*, the patient making a perfect recovery.

About 4 P.M. on April 25, 1875, an able-bodied labourer, while standing at the bar of a liquor store drinking with some acquaintances, received a pistol-shot from the hand of one of them. He was carried to his home near by, where I saw him shortly afterwards lying on his back in bed, somewhat sobered, complaining of pain, faintness and chill, and restlessly moving from side to side.

A brief thorough examination disclosed the usual appearance of a bullet-wound of small size, from which there had been only a few drops of blood externally; how much internally was for future determination. It was also evident that the bullet had penetrated and lodged in the abdominal cavity, having entered at the right upper angle of the umbilical region, the situation of the wound corresponding, as nearly as can be ascertained, with a portion of the transverse colon, the commencement of the duodenum, possibly the greater curvature of the stomach, distended by a hearty meal and fermented liquor. Although the pistol was fired within a few inches of the body, the bullet failed to pass through, owing to the obstacles presented by a coarse cotton blouse, a thick-padded vest, four folds of a heavy blue flannel shirt, and a cotton wool undershirt. Without any unnecessary delay in vain efforts to find the bullet, the wound was cleansed, and closed by a compress of old linen, wet with cold water, covered with oiled silk, and kept in place by a broad bandage, tightly applied. During the exa-

mination and dressing he vomited freely about a quart of partly digested food and beer, in which, after careful examination, neither blood nor bullet could be detected. An opiate, combined with an alkaline diaphoretic, was freely administered, and ice, with carbonated water, allowed in small quantities, to allay thirst. Directions were given to examine the excretions closely; and absolute rest on the back, with the knees in the flexed position, was enjoined.

That night he was tolerably comfortable, vomiting a little, at intervals, somewhat feverish, and unable to sleep. Next day symptoms of peritonitis set in, with a chill, followed by increased pain and tenderness of the abdomen, and a little later by tympanitis, so that I was obliged to loosen the bandage and apply a bag of pounded ice to the wound. Five grains of Dover's powder, with a grain of calomel, were then administered every three hours. Under this treatment he was more comfortable that night, sleeping a little at intervals, and feeling better next day, the fever having abated somewhat, and the gastric disturbance having subsided into a kind of abortive hiccough. The iced bag was replaced by a wet napkin, covered with oiled skin.

On the third day, feeling much better, he expressed a desire to evacuate the bowels, observing that he thought he would be helped by the operation. After some hesitation I resolved to give him an oleo-terebinthinate enema, which acted promptly in two free evacuations, followed by speedy relief of all the symptoms—pain, tympanitis, gastric irritation, etc. A careful examination of the passages discovered nothing unusual to prolonged constipation, and I began to hope the intestines had escaped injury. On the fourth day he was much better, but still expressed a desire to go to stool, notwithstanding the free use of opiates, taken as at first prescribed, with very little drink, and no nourishment. After some deliberation I prescribed a castor-oil draught, which operated in the usual way, producing three passages, in the last of which the bullet was found imbedded in a small mass of fæces, requiring considerable washing to remove. After this, his progress to complete recovery was uninterrupted by any untoward symptom, care being taken only to confine him to light nourishment. In nine days the wound was entirely healed, a little circumscribed induration alone remaining around the scar. He was kept in bed for two weeks altogether, as a precaution. The bullet was part of a patent cartridge, and weighed only forty grains, apothecaries' weight.

I have seen him occasionally since, and, although unable to labour at hard work, he says he feels well and strong, suffering no inconvenience except from an occasional twinge in the site of the wound, and from the bandage which he still wears.

The favourable termination of the case, I think, was owing to the smallness of the missile; to the early closure of the wound; to the entire absence of attempts to find the bullet by probing, a species of surgery not only meddlesome, but dangerous; to abstinence from food and drink except in small quantities; to absolute rest and a good constitution.

J. MILNER FOTHERGILL, M.D.

JACOBSON ON CENTRAL CICATRISATION IN CARCINOMATOUS ULCERS.—Dr. Jacobson, of St. Petersburg, reports in the *Berliner Klinische Wochenschrift*, No. 27, 1875, a case of carcinoma of the face, on which he bases his views that the presence

or absence of central cicatrization cannot be regarded as of any value in the differential diagnosis of lupous and carcinomatous ulcers. A man, aged forty-three years, was admitted into Professor Bogdanowsky's clinique for the treatment of a circular ulcer of two years' duration, over the left masseter muscle. The base of this ulcer was soft, and presented over most of its surface healthy granulations, and here and there patches of exposed and eroded muscle. The margins were slightly thickened and indurated, though not surrounded by a zone of infiltration, and at some parts were undermined. The discharge was not profuse, and was free from bad smell. Three weeks after the patient's admission, the ulcer commenced to heal at its posterior and inferior margins, and two weeks later, a small cicatricial islet appeared near the anterior margin, and afterwards increased slowly in size. Small portions of this removed from time to time and submitted to microscopical examination, presented all the histological characters of carcinoma, and of that rare variety described by Waldeyer under the name of carcinoma granulosum. In vertical sections of small portions taken from the centre of cicatrization and the parts beneath, Dr. Jacobson found a superficial layer of stratified epithelium, from which papilliform protrusions passed into the subjacent tissue. This superficial layer and its extensions were made up externally of hardened epithelial cells, and internally of young cylindrical cells, some of which were dentated (*Stachel-Zellen*). Below the epithelium was found a layer of granulation-tissue, made up above of soft round cells and a homogeneous intervening substance, and below of closely applied spindle-cells, which, as they were traced downwards, acquired more and more the characters of fibrous connective tissue. In sections taken from the more central parts of the cicatrised islet were found irregular groups of closely applied young cells, resembling, both in shape and in arrangement, those of epithelium, and containing disproportionately large nuclei. In the midst of each of these groups were found masses of cells concentrically arranged around glistening corneo-epidermoid centres, and around the groups was an infiltration of round distinctly nucleated cells, larger than white blood corpuscles. Before removal and microscopical examination of portions of the cicatrised centre, the ulcer was regarded as a simple chronic sore, as it presented no microscopical indication of a carcinomatous character; there was not any infiltration either of its base or of its margins; the surface of the ulcer was soft, and did not present any tubercles or warty prominences; the granulations presented a very healthy appearance; the margins of the ulcer presented no irregular thickening, and the surrounding portions of integument were not indurated; the neighbouring lymph-glands were not enlarged, and the discharge from the surface of the ulcer had not a bad smell. The absence of the superficial signs of carcinoma in this case were due to the fact, that the epithelial masses were covered by a layer of ordinary granulation-tissue capable of undergoing cicatrization.

The author endeavours to explain how cicatrization could be started in an ulcer like this, in which the cutis, the normal epithelial structures, and the fascia over the masseter muscle, had been destroyed. He holds that the cancerous deposit, as it had reached the surface, must be regarded as the starting point of this cicatrization, and that either the cancer-cells had penetrated the granulations, and instead of having

undergone the usual degeneration on the surface had, under some unknown conditions, taken an epidermoid arrangement, and induced through further development scarring of the ulcer; or on the other hand that the process had been commenced at one circumscribed spot on the surface, and had caused through the influence of contact the conversion of the granulation cells into epidermis. The microscopical preparation clearly proved, the author states, that cicatrization had started from the cancerous masses.

The view that a malignant ulcer presenting the so-called cicatricial centres must be regarded as one of a lupous, and never as one of a cancerous nature, is opposed by the author, who points out that, according to modern pathologists, epithelium in the developed organism can arise only from epithelium. He states that in the extensive hospital practice of Professor Bogdanowsky, he has, in the course of three years, observed but three cases of lupus with central persistent scar-like islets which, though regarded by many authorities as patches of cicatricial tissue, failed under the microscope to present the slightest trace of epithelium. On these grounds, the author holds that the occurrence of central cicatrices with epidermic coverings at spots where the skin with epithelial structures has already been destroyed, points with fair certainty to the diagnosis of the disease as an ulcerating epithelial new growth. Lupus is, and remains to the last, a granuloma, and cannot develop on its ulcerated surface a true cicatrix.

W. JOHNSON SMITH.

DELERY ON A FOREIGN BODY IN THE AIR PASSAGES.—In the *New Orleans Medical and Surgical Journal* for July, a remarkable case of recovery when a foreign body had been in a bronchus four months is related by Dr. C. Delery. He was called, October 20, 1873, to visit E. Toulmé, aged sixteen, who had swallowed a berry covered with sharp points or thorns. He found the patient much troubled with a kind of croupal cough, and experiencing a feeling of uneasiness which was apparently felt at the upper extremity of the œsophagus. He directed him to swallow five or six pieces of stale bread one after the other. It seemed as if the foreign body were being moved, for at each deglutition the feeling of uneasiness was felt lower down, till it disappeared entirely at the sixth deglutition; the last unpleasant feeling having been experienced as if quite near the cardia. Dr. Delery was satisfied that the berry had dropped into the stomach, and left the patient. The next day the patient began coughing as badly as ever, without experiencing, however, the feeling of uneasiness above described. An abundant foamy expectoration soon appeared. The next day an emetic provoked the expulsion of three or four small thorns. The patient experienced momentary relief; he soon, however, relapsed. He then went on alternately better and worse until early in April. About the 15th fever set in, with a spell of coughing which could only be checked by strong doses of morphia. The next day broncho-pneumonia was evident by auscultation, and by the sputa. The trouble had now reached its paroxysm; skin hot; pulse 120, and even 130 at times; constant croupal coughing; the patient was very restless, with almost complete loss of sleep. Active treatment was directed against the condition of broncho-pneumonia; the agitation and insomnia subsided after injecting subcutaneously a sixth of a grain of acetate of morphia.

On April 25, 1874, Dr. Delery was hastily summoned. An extraordinary feeling of uneasiness had suddenly come on; the patient had called his parents to his bedside, being under the impression that he was about to die. His face was much altered, contracted, and blue; feeling as if he were about to suffocate, he made signs that a basin be brought to him; he suddenly sat up in bed, and vomited a mixture of bile and mucus, in which the whole berry was found. Since then his health improved daily, and he is stouter now than he has ever been.

KOCHER ON THE ANALOGIES OF DISLOCATION OF THE SHOULDER AND HIP-JOINTS, AND THE METHODS OF REDUCING THEM.—Dr. Kocher contributes, in Volkmann's *Sammlung Klinischer Vorträge*, an article in which he bases the methods of reduction of dislocation of the shoulder and hip on the anatomical structure of the joints. He remarks that these joints possess several points of analogy, especially in their ligamentous apparatus. The Y-ligament of the hip-joint, which proceeds from the anterior inferior spine to the linea intertrochanterica, and is connected with the zona orbicularis, has its analogue in the coraco-humeral ligament, which, arising from the coracoid process, divides into two branches, one of which is inserted into the greater tuberosity, the other into the lesser tuberosity of the humerus. From both these branches fibres proceed to the capsule, and perform the same functions as the orbicular ligament. These anatomical analogies indicate a similar mode of reduction. The dislocations of the shoulder and hip are essentially either forwards or backwards.

1. In dislocations upwards and forwards (subcoracoid and ilio-pubic), the special movement for reduction is flexion, which in the case of the shoulder must be preceded by strong rotation outwards, while in the case of the hip this has already been done. After flexion, rotation inwards and extension follow. In the hip, extension follows immediately on flexion.
2. Dislocations downwards and forwards (axillary and obturator) require rotation outwards, which must be preceded by flexion and traction.
3. Dislocation downwards and backwards (infraspinous and sciatic) require rotation inwards, flexion, traction, and finally rotation outwards.
4. Dislocations upwards and backwards (subacromial and iliac) require flexion or the utilisation of that already existing, traction and rotation inwards.

The methods under consideration are essentially those of elevation and rotation. Elevation serves either for relaxation of the stretched portions of the capsule (the ilio-femoral ligament by flexion, the coraco-humeral ligament by flexion and abduction) or for stretching them so as to form a firm point for leverage.

Irregular and old dislocations require somewhat modified procedures.

The use of chloroform in the reduction of dislocations should be limited, according to Kocher, as muscular contraction may often be useful.

PARONA ON A CASE OF AVULSION OF THE TUBEROSITY OF THE TIBIA.—This case is reported by Dr. F. Parona in his *Rendiconto Biennale di Clinica Chirurgica* (extract in *Annali Universali*, June, 1875). There are recorded in medical literature (according to Dr. Sellier) about thirty cases of

the patello-tibial ligament. In two only, recorded by Richet and by Sistach, the rupture was accompanied with the avulsion of a lamina of bone from the tuberosity of the tibia; and in one case, seen by Nélaton, and recorded by Binet, there had been fracture of the patella three years previously.

Dr. Parona's case was as follows. A robust man, a carter, came into the hospital at Novara in 1870, with a transverse fracture of the right patella. An immovable apparatus was applied, and in ten weeks he was able to walk about with the aid of a stick and a knee-cap. Six months later, in consequence of an energetic contraction of the triceps, the fibrous band of union gave way, and the patient was admitted into the hospital at Pavia. According to his account, the treatment consisted in the application of two India-rubber rings, one above and the other below the knee, which were drawn together by straps. At the end of two months, fibrous union had taken place to a sufficient extent to enable the patient to walk many miles with the sole aid of a stick.

On May 13, 1872, during an effort to maintain his equilibrium, the right leg being completely extended, he felt a severe pain in the knee, and found himself unable to stand. On the same day he was admitted into hospital, under the care of Dr. Parona, who found the knee very painful and rather swollen. The patella was displaced upwards, inwards, and forwards; the fibrous callus marking the fracture was felt to be firm, and about a centimètre or more in length. The patello-tibial ligament was detached from its point of insertion; crepitus was felt, indicating separation of a portion of the tuberosity of the tibia. The leg was placed in the extended position, on a slightly inclined plane; and when the local swelling had disappeared an immovable apparatus was applied. At the end of twenty days he returned home; and some months afterwards was able to walk long distances with the sole aid of a knee-cap.

RÄTZEL ON A CASE OF HERNIA OF THE BLADDER.—In an inaugural dissertation (Berlin, 1874), Rätzell relates a case of total prolapse of the bladder in the sac of an inguinal hernia. The case, which occurred in Langenbeck's clinic, was that of a man, aged forty, who was admitted with strangulated inguinal hernia of the left side. After the intestine had been reduced, a second sac was perceived, which was fortunately recognised as a bladder before being laid open. It was immediately reduced. The patient died of suffocation in consequence of some of the contents of the stomach passing into the trachea during violent vomiting. On *post mortem* examination, the bladder was found to have returned to its former position.

A. HENRY, M.D.

TAYLOR ON SOME OF THE ELEMENTS OF DIAGNOSIS IN THE DIFFERENT STAGES OF DISEASE OF THE HIP-JOINT.—In this paper (*New York Medical Record*, May 8, 1875) Dr. C. F. Taylor concludes that 'the symptoms generally relied on as diagnostic of disease of the hip-joint are worthless for all practical purposes of either anticipating the graver stages of the disease, or of affording indications for treatment. They pertain, for the most part, to the fully developed disease, and are therefore observed too late for purposes of diagnosis; and next, the symptoms of impending danger to this joint exist, in the majority of cases, long before the time of actual danger has arrived, and it is

possible—I might almost say always possible—to anticipate by prompt and effective treatment, and to prevent, by cutting short the disease, the development of those symptoms which, at a later and less curable stage, are often relied on for evidence of the disease itself.'

Our space only allows a very brief notice of a paper which extends over seventeen columns of print, and we must say that the value of the paper is much diminished to our minds by the author having omitted to state what he precisely means by 'the symptoms generally relied on as diagnostic.' Every one, we should have thought, agrees that the stiffness of the joint as testified by the movement of the pelvis along with the femur in passive motion, from involuntary contraction of the muscles, is one of the most valuable signs of early hip-disease, and this is Dr. Taylor's conclusion also. He speaks lightly of the value of pain as a symptom of hip-disease, and he explains the absence of pain, which is doubtless occasionally noticed (though in most cases pain is really present at one time or other, as Dr. Taylor's own cases show) by the very fact of muscular contraction preventing movements of the joint. But, however that may be, the muscular rigidity has long been insisted on by most authors as the best sign of the disease in its earliest stage. Dr. Taylor makes a most just distinction between the active muscular contraction set up by inflammation, and the passive contraction of the muscles following on deformity and displacement of their attachments which American authors call 'contracture.' Dr. Taylor relies chiefly on sufficient extension (with rest) in order to relax completely the muscular contraction, carrying this extension to a much greater degree than is usual in this country. He speaks of a case (at the age of thirteen) in which, beside an instrument exercising a force estimated at 100 pounds, he also put a weight of fifty pounds on the foot. This amount of extension was used for six weeks; and, at the end of that time, he was, as the author phrases it, 'set up,' then wore the extending splint for two months more, and was then well.

The paper will repay perusal, especially as showing the importance of attention to the early stages of hip-disease, and the great advantage which may be obtained by early and persevering treatment. Many cases are, no doubt, perfectly curable if taken in time, which are overlooked till the disease has reached a stage at which no complete recovery is possible.

T. HOLMES.

STOKES ON SUPRACONDYLOID AMPUTATION OF THE THIGH.—Mr. William Stokes, professor of surgery in the College of Surgeons, Ireland (*Dublin Medical Journal*, August, 1875) considers the supracondyloid method superior to those of Velpeau, Syme, Gritti and Carden, or to excision of the knee joint. The latter he considers a very dangerous and disappointing operation. He gives two cases as illustrations of the supracondyloid operation, both undertaken for disorganisation of the knee joint, following disease of the bones of the leg. Both cases are perfect successes, as may be seen by the woodcuts copied from photographs, which accompany the paper. Stokes briefly reviews the history of amputation at the knee as practised by Velpeau, Syme, Carden and Gritti, discussing the method of the last named and modifications of it at some length. He insists on the importance of being very exact as to the point at which section of the femur is

made in supracondyloid amputation (*i.e.*, from half to three-quarters of an inch above the antero-superior margin of the cartilage of incrustation), in order to avoid tilting of the patella or opening of the medullary cavity. Even when this point is carefully attended to the patella will tilt in some cases, so he recommends sewing its freshly cut surface to the surface of the femur by carbolised catgut sutures. He summarises the advantages of the operations at the knee over those in the lower third of thigh; and then tables the special advantages which he considers the supracondyloid method to give as follows.

1. The posterior surface of the anterior flap being bound by natural synovial membrane, suppuration, and risk of purulent absorption, are lessened.

2. The risk of the patella shifting its place is prevented by the high section and the use of catgut sutures to unite it to the femur.

3. The osseous curtain formed by the split patella to the end of the femur lessens the chance of pyæmia, and is not so liable to slough away as Langenbeck's periosteal curtain.

4. The vessels are divided at right angles to their continuity instead of obliquely, as in other flap operations.

5. The posterior flap diminishes chance of any wide gaping posteriorly, while the oval shape of the anterior one tends to form a rounded cone stump.

6. The normal attachments of the extensors are preserved.

[This operation is doubtless a very good one in some cases, but we should question some of the advantages claimed, and think those which are real are more securely attained by the modified Carden operation of Professor Lister, fully described by him in his article 'Amputation,' in Holmes's *System of Surgery*, vol. v. 2nd ed. We have seen numerous excellent, nay, perfect results by Mr. Lister's method.—*Rep.*]

J. KNOWSLEY THORNTON.

MOUTARD-MARTIN AND FÉRÉOL ON THE INDICATIONS FOR TRANSFUSION OF BLOOD.—M. Moutard-Martin, in the course of a discussion at the Société des Hôpitaux, reported in the *Bulletin Général de Thérapeutique*, for June 30, remarks that most generally anæmia from hæmorrhage terminates by recovery except in rare exceptions, and that, in consequence, too great importance should not be ascribed to the success obtained in these cases by transfusion, since very probably the patients would have recovered just the same without the operation. M. Féréol regretted the persistence with which M. Moutard-Martin throws doubt on the utility and efficaciousness of transfusion in certain cases, particularly in cases analogous to those reported by him. Not only is this operation formally indicated in cases of hæmorrhagic anæmia, but it is also important not to wait too long before performing it, and not to allow the patients to become exhausted under the influence of these hæmorrhages, which end by becoming continuous and incessant. For instance, M. Féréol questions if a patient, whom he saw in conjunction with M. Moutard-Martin, and who succumbed notwithstanding transfusion, would not have been saved if the operation had been performed a week earlier. The same holds good in a case reported by M. Lorain, and in which the patient was only operated on in the last extremity. As to three cases reported by M. Raynaud, which have also been represented as failures, one of them is not accepted as a failure by M. Féréol; it is that of a patient who

came completely to himself after the operation, spoke, and even declared himself as being very disgusted at being brought back from the other world, where he described himself as being very comfortable. This patient succumbed to a rupture of the carotid, which came on again after the operation; but the transfusion had none the less completely revived him. It results from these facts, according to M. Féréol, that, in cases of anæmia from hæmorrhage, operation may be performed at the last extremity with some chances of success, but in the case of anæmia resulting from chronic affections, we must not wait, but must operate before the patient is completely exhausted. For his own part, he is persuaded that if he had waited longer before operating on his patient, she would infallibly have succumbed to a fresh hæmorrhage. Although seven weeks had elapsed since transfusion was performed, the menses had not again made their appearance. M. Moutard-Martin said that it was necessary in the first instance to clearly lay down the indications for transfusion. The first of these indications is, according to him, complete exhaustion followed by hæmorrhages, whether these hæmorrhages be sudden or come on in succession. But he none the less persists in the opinion that the majority of cases which have been set down as successful cases of transfusion would, perhaps, have spontaneously terminated in recovery. M. Moutard-Martin is very reticent on the question as to whether transfusion should be tried in other cases than in hæmorrhagic anæmia; for instance, in certain morbid constitutional cases. He believes that it should not be attempted in cases of organic change. M. Bucquoy believes, like his colleagues, that the indications for transfusion should first be clearly formulated. They are in harmony on these two points: 1. That anæmic hæmorrhage is the first of the indications; 2. That the existence of an organic lesion which has brought on constitutional anæmia is a formal contra-indication. But between these two conditions there are intermediary states which merit examination from the transfusion point of view. For instance, M. Bucquoy has sometimes had occasion to observe young women, who after a more or less difficult confinement, lose blood during several months and fall into a profound state of anæmia, from which they cannot be raised by any of the plans of treatment usually employed; who, besides, can neither take medicine nor food, and, attacked by diarrhœa, finally succumb without displaying any organic lesion. M. Bucquoy questions whether, in these cases, it may not be an indication to have recourse from time to time, at longer or shorter intervals, to small transfusions frequently repeated. M. Dujardin-Beaumetz pointed out, that in cases of essential anæmia, transfusion, as a rule, only affords momentary results, as proved by a case of transfusion performed some years since in M. Béhier's wards at the La Pitié Hospital, which was a failure. M. Féréol reminded the speaker that in this case, which occurred many years ago, it had been acknowledged that, in consequence of a mistake, too large a quantity of blood was injected, which, perhaps, was not entirely without influence on the fatal result by which the operation was almost immediately followed.

RIGAUD ON THE TREATMENT OF STRANGULATED HERNIA.—M. Rigaud (of Nancy) read a note at the meeting of the Société de Chirurgie on June 9, on some points of the manipulative part of

the operation for strangulated hernia. It is impossible, he said, to lay down invariable rules for this operation. Those which anatomists have established—to divide the integuments layer by layer—are defective; for the latter have undergone such modifications that it is impossible to recognise them. The only indication which it is necessary to formulate, is to come down on the bowel without perforating it; it is only in its vicinity that prudence is necessary. M. Rigaud has therefore for some time adopted the following plan. When he has incised a certain number of layers, and he thinks he is in the neighbourhood of the intestine, he abandons the bistoury, and tries to make a slight fold on the surface of the tumour by seizing it between the thumb and first finger, previously dried and covered with starch powder. If he feel a globular swelling below this fold, he is not on the intestine, and again has recourse to the bistoury. He afterwards again tries the above plan; and if, below the new fold he has made, he find a cavity instead of a globular tumour, he concludes that he is down on the intestine. Another way of assuring himself that he sees the intestine, is to touch it lightly with the bistoury; the muscular layer being provided with a large number of vessels, a somewhat large quantity of blood escapes from it. This wound is entirely without danger. These precautions greatly simplify the operation for strangulated hernia, and M. Rigaud lays great stress on them. This surgeon never employs chloroform, for the involuntary movements which the patient makes under the influence of this anæsthetic may cause perforation of the intestine. It is only the first stage of the operation which is painful; and that is so brief, that the majority of patients, sustained by the hope of speedy relief, support it well.

DUPOLOY ON IGNIPUNCTURE IN THE TREATMENT OF HORDEIFORM CYSTS (GANGLION) OF THE WRIST. Dr. Duploup, Professor at the Naval School at Rochefort, in an article on this subject, in the *Bulletin Général de Thérapeutique* for June 30, refers to two cases under his care, which have been reported *in extenso* by one of his pupils, Dr. Guiland, in a thesis *De l'ignipuncture* (Paris: 1875.)

A female, aged twenty-one, had suffered from a large palmar ganglion of the wrist for six years. It extended above the wrist and down into the palm. It was punctured and painted without benefit. Subsequently M. Dolbeau, of Paris, incised it in its upper part, and evacuated a large number of hordeiform bodies; but this was followed by a return of the swelling. Dr. Duploup next punctured it above and below, scarified the lining membrane, and let out more of the loose bodies. This was followed by acute inflammation, but not by obliteration of the sac. Lastly, he resorted to ignipuncture, making twenty punctures on the first day and twelve on the fourth day. This proceeding was not followed by the least suppurative inflammation; nevertheless the tumour gradually subsided, and in a month had shrivelled up. The fingers, however, were almost immovable; but recovered motion under the use of gymnastic exercise.

In the case of an agriculturist, who presented a ganglion without any hordeiform bodies in it, he applied forty-one points of ignipuncture. These were only followed by areolar inflammations at each point. Three weeks later a small swelling appeared at the upper and inner part of the tumour; this was

treated by four more punctures, which sufficed to cause the ultimate disappearance of the cyst.

He thinks it must be admitted, from the experiments of M. Julliard, that the heated needles only irritate the walls they traverse to a very slight extent, and determine adhesions between them proportioned to the number of punctures. The exudations are soon transformed into cicatricial tissue, which contracts like other scar tissues, and thus is formed what he calls the caustic suture.

In cases presenting hordeiform bodies, he would recommend the evacuation of those bodies as a preliminary operation; and after the employment of ignipuncture, he would advise early resort to passive movements of the fingers and faradisation, to prevent the contraction of the fingers.

MATERIA MEDICA AND THERAPEUTICS.

MAURY ON THE PHENATE AND SALICYLATE OF QUINIA.—Considerations of a purely theoretical order led M. Maury (*Lyon Médical*, July 18 and 25, 1875) to think that a compound of phenol (carbolic acid) with quinia might be found to exhibit the specific virtues of the alkaloid in conjunction with the antiseptic properties of the acid. A phenate of quinia had already been prepared by Ramel in 1871, by acting on sulphate of quinia with potassium phenate. For this double decomposition, Maury substitutes direct combination. He adds pure phenol to an alcoholic solution of freshly precipitated quinia; the phenate crystallises out in twenty-four hours. The salt thus prepared is in needle-shaped crystals, soluble in alcohol, insoluble in water, but nevertheless very deliquescent. Its taste is bitter and somewhat caustic, and its unstable character unfits it for internal use. Maury found himself constrained to admit that the result of his exertions was not likely to prove of much practical value. It next occurred to him that the supposed advantages of the phenate of quinia, without any of its obvious disadvantages, might be obtained by substituting salicylic acid for phenol. Salicylic acid is known to possess all the antiseptic properties of the latter substance; but it is free from disagreeable odour and has no corrosive action. It may be made to combine with quinia either directly, or by double decomposition; sulphate of quinia and salicylate of soda yielding salicylate of quinia and sulphate of soda. The salt crystallises in prismatic needles, and is not deliquescent. It contains 70.1 per cent. of the alkaloid, and 29.9 of the acid. It is soluble in alcohol, both hot and cold, but insoluble in water. Acids decompose it, throwing down a precipitate of salicylic acid. It is bitter to the taste, but not at all caustic; three grains, taken internally, caused no disagreeable symptoms; the urine had the characteristic odour of meadow-sweet, and gave a violet colour with ferric salts; the presence of the alkaloid could not be detected in it. Experiments with yeast showed that the salicylate had a marked power of checking and arresting fermentation; but it is not easy to determine how much of this property belongs to the acid and how much to the base. It still remains to be seen whether the new compound possesses any clinical superiority over the salts of quinia usually employed in medicine.

BOILLE AND GUBLER ON THE HYDROBROMATES OF QUINIA AND ESERIA.—The hydrobromate of quinia was originally prepared (by M. Latour) by acting on bromide of potassium with the acid sulphate of quinia. The product of this double decomposition, though sufficiently pure for medical purposes, is never free from a considerable admixture of sulphate of potash. M. Boille (*France Médicale*, August 5, 1875) has contrived a modification of the above method, by which a perfectly pure compound may be procured. Bromide of barium (free from chloride) is substituted for bromide of potassium; the insolubility of the barium sulphate rendering it easily separable from the hydrobromate of quinia. Two salts may thus be obtained, corresponding to the two sulphates of the alkaloid. The neutral hydrobromate contains 75 per cent., the acid hydrobromate about 60 per cent. of quinia. Both salts crystallise readily in long prisms of a pearly-white or yellowish tint. They are far more soluble than the corresponding sulphates; and it is in this that their superiority consists. For, whereas one part of sulphate of quinia requires 30 parts of boiling water, 788 of cold water, 60 of absolute alcohol, and 36 of glycerine to dissolve it, the corresponding hydrobromate requires only 5 parts of boiling water, 60 of cold water, its own bulk of absolute alcohol, and 10 parts of glycerine.

M. Gubler has experimented clinically with the hydrobromate for about twelve months. The physiological effects produced were essentially those of quinism (headache, tinnitus aurium, deafness); occasionally, however, some degree of muscular lassitude and drowsiness were noticed, and attributed to bromism. The full effects of the drug, whether physiological or remedial, may be obtained by giving 40 centigrammes (about 6 grs.) in two doses. It is well borne by the stomach. Its chief practical merit appears to be its solubility; it is well adapted for hypodermic injection. M. Gubler finds that a ten per cent. solution in water, with a little alcohol, answers all requirements, without causing any inflammatory accidents at the point of injection.

The unstable character of the salts of eseria (the active principle of Calabar bean) has been a great obstacle to their employment; the sulphate, hydrochlorate, and oxalate being amorphous, hygroscopic, and readily altered by the action of the air. M. Duquesnel has succeeded in obtaining a hydrobromate of eseria in stellate tufts of crystals. This compound is freely soluble in water, and does not undergo change when kept in a dry place. Its solutions are perfectly neutral, and exhibit the characteristic myotic properties of the base.

COLOMER ON THE GLYCEROPHOSPHATE AS A SUBSTITUTE FOR THE PHOSPHATE OF LIME.—A series of experiments performed by Dr. Lestage led him to the conclusion that neither the phosphate nor the biphosphate of lime appears in the urine when given internally—that they pass through the alimentary canal without being absorbed. The lactophosphate and glycerophosphate of lime, on the other hand, effect an entrance into the blood, and are eliminated, in appreciable quantity, by the kidneys. The former of these salts is not suited for medicinal use; its administration to guinea-pigs was followed by the rapid emaciation and death of these animals. No such untoward consequences were noticed to follow the administration of the glycerophosphate. Colomer accordingly suggests

(*Gazette des Hôpitaux*, April 3, 1875) that the latter salt should be prescribed instead of the ordinary phosphate. The compound is a definite one, and may be obtained, though with some trouble, in micaceous crystals, soluble in cold water. It has an agreeable, sweetish taste, and gives rise to no unpleasant effects. It may be given in doses of from 7 to 15 grains before meals.

The preparation of the glycerophosphate is very tedious, and its cost relatively high. Some economy may be effected by omitting the final process of crystallisation, which is the less necessary as the salt is best administered in solution. It is possible that the phosphovinate of lime, a cheaper compound, may hereafter be found to possess the same advantages as the glycerophosphate. On this point, however, the author declines to express an opinion.

THOMPSON ON THE ACTION OF RED OR AMORPHOUS PHOSPHORUS.—Mr. Ashburton Thompson who has done much to rehabilitate free phosphorus in medical opinion, describes a series of experiments with the amorphous variety of the metalloid (*Pharmaceutical Journal*, July 17, 1875). Previous inquirers had established its inert character, by giving it in considerable doses to the lower animals. Mr. Thompson administered it to twelve persons, three of whom were healthy, five suffering from general debility alone, while the remaining four were cases of 'hepatic obstruction,' hysteria, menorrhagia followed by pelvic cellulitis, and acne of the face. The material employed had been carefully freed from all traces of free phosphorus, with which the allotropic variety is often contaminated. The quantity given reached half-a-drachm, taken three times a day for forty days. This amount was taken in powder, and followed, without any interval, upon a course of a scruple, taken three times daily, for thirty days. In other cases, smaller doses were administered. The general result of the trials was negative, corroborating fully the usual statements concerning the absolutely inert character of this form of phosphorus. No symptoms of any kind were noticed, and no remedial effect was produced in the few patients who were suffering from definite maladies. This does not, of course, as Mr. Thompson is careful to observe, exclude the possibility that amorphous phosphorus may exert a specific influence over some particular disease; but it renders any such prospect unlikely.

E. BUCHANAN BAXTER, M.D.

BRUEN ON QUININE IN PERTUSSIS.—In the *Philadelphia Medical Times* for July 17, Dr. Bruen gives the results of the administration of quinine in pertussis as follows.

In many cases, if the drug be used continuously, it either signally fails to relieve or else it affords but slight benefit. The proper method is to administer it by rapidly increased doses for a period not longer than five days, after which it should be stopped, and after an interval, if necessary, recommenced.

If at any time during the twenty-four hours the paroxysm be especially violent, it is a good plan to administer the quinine at such intervals that a full dose shall be given one hour or two before the spell is expected. I have known of cases which have been most benefited when the quinine has been given in large amount in two doses. This, I have been told, has been the best means when the spells were very violent during the night. I have never used the drug in this way myself. The amount of

quinine given in pertussis seems often limited by the fears of the medical attendant. I have found that to accomplish good the medicine must be pushed to a quantity equal to a full antiperiodic adult dose. To a child under three years old at least ten grains should be given in twenty-four hours; to one of twelve years, from sixteen to twenty grains in the same time. It is only by using these full doses that good can be accomplished or cures made.

In many instances I have seen it cut down immediately the number of the paroxysms from forty or fifty daily to only eight or ten; the case afterwards rapidly recovering similarly to those which have run their full course. In more rare cases it is positively curative, but the great relief afforded is amply sufficient to make us employ it when other means are so constantly ineffectual.

In my hands it did not usually moderate the violence of the paroxysms: this effect is generally seen to occur gradually after the spells have been reduced. I have seen only a few cases where unfavourable symptoms appeared during the treatment by quinine; one child of fourteen months, who had taken ten grains of quinine for two days, manifested symptoms of congestion of the brain, which yielded promptly to treatment, the disease being also cured. In one or two other cases a little drowsiness and headache were the only unfavourable symptoms, but these effects came on gradually, and I believe there is no danger in using quinine freely as I have recommended, provided we watch our patients with ordinary care.

DUNCAN ON APOMORPHIA.—In the *New York Medical Record* for August 7, Dr. Duncan gives an account of the hypodermic use of apomorphia as an emetic in children. He writes: A great deal has been written about the hydrochlorate of apomorphia, since its discovery in 1868. I obtained a specimen of this drug several months ago, and have ever since been using it whenever occasion has demanded an emetic, and now believe that, in this capacity, its value cannot be too highly estimated. It acts more rapidly and certainly, and as efficiently as the best of the older emetics, considering them to be turbit's mineral, tartar emetic, and ipecacuanha.

The qualities which recommend it particularly are:

1. The rapidity of its action; 2. the absence of danger from an over-dose; 3. the lightness of its secondary effects; 4. the shortness of the period of nausea; 5. the easy manner of its introduction.

The average time at which emesis has occurred, after its introduction under the skin, is 2.9 minutes, which is very much less than the shortest time noticed when using the yellow sulphate of mercury.

The longest time for emesis to appear was 4.15 minutes in a case of alcoholism, while the shortest was 1.75 minutes in a case of capillary bronchitis.

That this feature is one to be appreciated, there is no gainsaying by anyone who has ever witnessed the relief produced by vomiting, in children with croup or capillary bronchitis. In cases of poisoning from the introduction of any of the corrosive poisons into the stomach, this gain of several minutes would be incalculably valuable.

In speaking of the absence of danger from an over-dose of apomorphia, reference is made to the use of the English preparation of the drug which is entirely pure, and not to the German, which, according to reputation, contains an impurity of morphia.

But having given gr. $\frac{1}{15}$ to a child of six years,

without detecting any symptoms of the effect of opium, I feel free to express the belief that danger from this source is not to be apprehended.

Again, since any pronounced action is limited to the production of vomiting, as no symptoms of gastro-duodenitis, nor disturbance of the cerebral functions, nor any of those of the depression frequently witnessed after the exhibition of other powerful emetics, are noticed, one feels safe in its administration. The entire visible effect of the drug disappears after the lapse of an hour or an hour and a half, and the child's system does not seem to have been disturbed by it.

That there are other effects than emesis is recognised, such as a tendency to sleep, a slight weakness of the legs, yawning, etc., but they are very slight and soon disappear after vomiting ceases.

In the introduction of apomorphia, the shortening of the period of nausea and retching is a great boon to children, who are spared several minutes of agony; for in three cases out of five, no change in the child's face, indicating nausea, can be seen until with one great effort the entire contents of the stomach are ejected.

The hypodermic method of using this drug makes it applicable to many cases in which an emetic could not otherwise be exhibited, for children at times absolutely refuse to swallow any medicine, and can be compelled to take it only after a long, exhausting struggle, which usually results in the loss of much of their strength.

Again, its superiority in this respect would be very marked in cases of poisoning, where the substance in the stomach might cause a chemical change of the drug introduced into that organ.

The dose of apomorphia, hypodermically used, for an adult, ranges from gr. $\frac{1}{10}$ to gr. $\frac{1}{20}$, but in children it is quite large in proportion.

For a child of 18 months	.	.	gr. $\frac{1}{50}$.
" " 2 years	.	.	gr. $\frac{1}{40}$.
" " 3 "	.	.	gr. $\frac{1}{35}$.
" " 3½ "	.	.	gr. $\frac{1}{35}$.
" " 5 "	.	.	gr. $\frac{1}{30}$.
" " 8 "	.	.	gr. $\frac{1}{25}$.

Glycerine seems to preserve the strength of the drug, and alcohol will dissolve it more readily than water, so that I recommend it to be prepared after the following formula: B. Apomorphiæ, gr. vii.; Spiritus rectificati, ℥xx.; Glycerin, ℥x.; Aquæ, ℥l. M. In a child of two years, $\frac{1}{35}$ of a grain may be used.

J. MILNER FOTHERGILL, M.D.

HUTCHINS ON APOCYNUM CANNABINUM AND ITS USE IN DROPSICAL AFFECTIONS.—At a meeting of the Medical Society of County of Kings, New York, on May 18, Dr. Hutchins stated that, in a case of general anasarca, complicated with pleuritic effusion and hydropericardium, where the patient, a man aged sixty, was suffering from extreme dyspnoea, the result of the enormous distension, after the failure of all the expedients used to excite the kidneys, he had made a trial of the apocynum cannabinum, based on the experiment of Dr. Jewett, of Canandaigua. The drug was obtained from a well-known house and prepared *pro forma*, and was administered without effect. Specimens were obtained from other drug-houses, and several fluid extracts were used, and still without effect. Dr. Jewett was appealed to for advice, and some of the drug, of his own collecting, was forwarded, prepared according to directions, and administered to the patient. In forty-eight hours

the man, who had been frightfully distended, was reduced to a skeleton. Though he died about a year afterwards, the water never again accumulated, any disposition thereto being immediately relieved by the infusion of this drug.

With additional supplies, obtained from Dr. Jewett, Dr. Hutchins had promptly relieved two cases of dropsy following scarlatina, and one case of phlegmasia alba dolens.

Dr. Jewett, under date of February 16, 1875, writes: 'The woody fibre of the root has little value. You will find the bark intensely bitter, and that it has to be used with some caution, or it will provoke vomiting and diarrhoea. Its great value consists in its diuretic action, which will be impaired by any hydragogue cathartic. Sometimes its effects are direct and positive, at others, and especially in case of vicarious action of bowels, it is more tardy. I have the report of a case from Buffalo of hydrothorax, with general dropsy, where the amount of urine in the first twenty-four hours was incredible, after all the ordinary remedies had been exhausted, and the man "given up." The milk-weed was given empirically by the nurse, and the patient is fast recovering. If your patient will bear stimulants, I would give the medicine in gin, and combine with it an ounce or two of juniper berries, breaking the skin of the berry, but not the seed. Put half an ounce in a pint of gin, add an infusion of two ounces of juniper berries in a pint of water. If the stomach and bowels be irritable, give a teaspoonful every four hours. Give two, three, or four teaspoonfuls at a time, if the stomach will tolerate it, until the effect is obtained. An experience of thirty years in its use has given me unbounded confidence, if properly used. I could astonish you with the cases that have come under my observation since the publication of the article in the *Transactions*.'

Under date of June 14, 1875, Dr. Jewett writes: 'A case came to my notice yesterday where a medical man, who was sceptical as to its efficacy, was induced to try it at my request, as every other remedy had been exhausted. The preliminary arrangements were made for the funeral. The patient took the milk-weed, and is well to-day.'

Dr. Hutchins argued that Dr. Jewett's experience with the apocynum cannabinum of his own collecting, and the prompt action of the drug furnished by Dr. Jewett in the cases above related, combined with the fact of the utter failure to produce any appreciable diuretic effect from the various specimens or fluid extracts, as kept by prominent drug-houses, lead to the conclusion that the apocynum, capable of producing diuresis, is not usually, at least, to be obtained in the shops. The *Dispensatory* asserts that the root is the official part. Dr. Jewett alleges, and the facts support his assertion, that the bark of the root is alone active.

Four specimens were shown to the society, one from Dr. Jewett, which was the bark of the root, and three others obtained from three leading drug-houses in New York, one being the woody fibre without the bark, one being the whole root, and one being the leaves and stems.

Dr. Hutchins was cognisant of a case of an elderly gentleman, subject to occasional attacks of dyspnoea from hydropicardium, which were speedily relieved by a very minute dose of the fluid extract frequently repeated.

Dr. Armor said that he had similar experience in the use of the apocynum. In a case of general

anasarca under his observation, a few years since, at the suggestion of a consultant physician, he was induced to try this, to him, at that time, a new remedy. The dropsical accumulation was immense, and all the usual remedies had been tried in vain. The apocynum was administered in the mode suggested by Dr. Hutchins, and within seventy-two hours the patient was drained almost to the condition of a skeleton. The effects were the most marvellous that he had ever witnessed. The patient was somewhat exhausted, but readily rallied under the use of general tonics and stimulants. He was kept on the use of quinine and tincture of iron for months afterwards, during which time there was little or no return of the dropsy. Encouraged by the prompt and powerful action of the new remedy, he determined to give it further trial in the wards of the Long Island College Hospital, but his experience there somewhat disappointed his hopes. In one case of general anasarca the effects of the remedy were almost as prompt and powerful as in the case just cited—the fluid rapidly disappeared, and the patient, under general supporting and tonic treatment, made a good recovery. In other cases, however, apparently similar in every respect to the ones reported, the remedy—although the same preparation of it was used—had little or no effect. The cases were apparently similar, and the remedy and mode of administration were the same. In the cases in which he failed to remove the fluid by the apocynum, he subsequently tried the usual remedies, such as digitalis, squills, calomel, iodide of potassium, etc., with similar results. On the whole, he was favourably impressed with the remedy, and would give it further trial. He had little confidence, however, in cathartics, diuretics, apocynum, or any other medicinal substance, in removing fluid effusion in closed cavities when it results from acute or subacute inflammation of serous tissues. A very marked distinction should be made between an effusion in a closed cavity, the result of an exudation, and that which results from a transudation. In the one instance it is an inflammatory product, and requires time or surgical interference for its removal; in the other it is a mere transudation, the result of a general dropsy, and is readily removed by appropriate medication. It is only in the latter form of effusions into closed serous sacs that he would have confidence in apocynum, or watery cathartics, or diuretics; in other words, the value of these agents is in proportion to the general character of the dropsy.

Dr. Burge referred to cases lately treated by him with the fluid extract of apocynum cannabinum. 1. A lady, three weeks after confinement, consulted him on account of ascites and general anasarca. The urine was highly albuminous. Ten drops of the fluid extract every three hours caused profuse and persistent diuresis. The anasarca was promptly and permanently relieved. At the end of three weeks the peritoneal cavity was emptied by means of the aspirator. The patient continued the remedy in five-drop doses three times a day, and at the end of one month the disposition to effusion seems to be overcome. 2. He was called to see a child aged six months, and found him with hot dry skin, staring expression of countenance, the fontanelle prominent, and with a feeling of fluctuation. The mother said he was extremely restless, and she thought his urine scanty. Half a drop of the fluid extract of apocynum cannabinum was given every three hours, in some pleasant vehicle. After several doses, he vomited once. The medicine was then given three times a

day, and after the second day the fontanelle was perfectly natural, and the child seemed as well as ever. At the end of three weeks he had a similar attack, which was treated in the same manner and with the same result. He is now well. Dr. Burge took exception to the view which was strongly expressed by members of the Society, viz., that medicines had no power to reduce an accumulation of serum in the pleural and peritoneal cavities. These effusions often subsided spontaneously, and why might they not be hastened by appropriate medication? In cases of acute pleurisy and rapid effusion, the fluid was often as rapidly absorbed, and Dr. Burge had always ascribed some efficacy to the means which he had employed.

WINTERNITZ AND TAUSZKY ON THE USE OF WATER IN FEVERS.—At a meeting of the New York Medical Library and Journal Association (*New York Medical Record*, June 4) Dr. R. Tauszky read a paper on the views of Dr. Winternitz, of Vienna, on the uses of water in fevers. The following is a brief abstract.

The mortality from fevers has lessened considerably since the application of water in their treatment has been practised by skilful hands. Febrile diseases become more dangerous to life the greater the production of heat within, and the less active the removal of the heat from the body. It is the principal duty of the physician in the management of fevers to lessen the fever heat by all the means at his command. If our interference with disease is not precise, we can never expect measurable results. We must know how to do if we wish to do right, and a strict method is necessary in physical therapeutics. We are at present far from possessing precise methods, but the little we do have of precision is of great value.

The following, according to Winternitz, are the methods in which water is to be used: Simple ablation, friction baths, half baths, full baths, shower baths, wet pack, continuous local and continuous general baths.

The indication for simple ablation, or the sponge-bath, is where the temperature is not over 101° or 102° Fahr. When used in higher fever, it is principally for its effect as a nervous stimulant; it also prepares the skin for more potent measures. This means must be repeated every half-hour, accomplishes the desired result only in a very unsatisfactory manner, and will produce elevation rather than lowering of temperature if not followed by a more potent measure.

The friction-bath is more useful than the simple ablation, and is accomplished by wrapping the patient in a sheet wet in water at a temperature of 62° to 53° Fahr. Before applying it, cool the head for the purpose of preventing congestion of the brain, which would otherwise follow. This bath has the advantage of being purely a nervous stimulant. It causes dilatation of the blood-vessels of the periphery of the body, and must have, as a matter of course, a great influence upon the action of the heart. Rubbing the skin gently also increases the amount of evaporation more than fifty per cent.

In children, especially in the eruptive fevers, when this bath is used the exanthema will appear in full view, thus rendering diagnosis certain in many cases where it was before uncertain. It is especially serviceable also in acute articular rheumatism, first wrapping up the inflamed parts and rubbing the

cooler parts of the body until these become warm. The half-bath must be continued from twenty to thirty minutes, and the temperature should not be lower than from 65° to 54° Fahr. It may be assisted by pouring water over the neck, chest, and back. If the patient be very sensitive, it is well also to first place a cloth over the head and pour water upon that, particularly if dealing with patients who are unconscious. The half-bath is preferable to the full-bath. In the full bath, the weight of the water prevents proper reaction. The disadvantages of too cold a bath are that the colder the water used the quicker the reaction, and the sooner the return of the fever-heat; and it is also too powerful a nerve-stimulant, and will sooner exhaust a patient. A patient should never feel chilly while in a bath, and as soon as the skin begins to assume a bluish colour he should be at once removed.

The patient is more likely to feel chilly in the full bath than when the half bath is used. It may be set down as a rule, that the water used for lowering the temperature when fever is present must be of a lower degree than for cooling the healthy body. Elevation of temperature will soon take place when the wet pack is used, but there is no means of reducing the pulse as quickly as it can be done by this method. The principal rule to be observed in the use of water is to methodically repeat whatever method of application is used, and neither during the day nor during the night to permit the continuance of a high temperature for much length of time.

OBSTETRICS AND GYNÆCOLOGY.

MATTISON ON AN EASILY EFFECTUAL METHOD OF ARTIFICIAL RESPIRATION.—Dr. J. B. Mattison writes, in the *New York Medical Record* of June 12: Among the different means of restoring asphyxiated infants, artificial respiration, after the manner of Hall or Sylvester, has long held a foremost place, and been successfully resorted to after the failure of other measures. More recently another plan, that of Schultze, has come into notice; and as it may be unfamiliar to many practitioners, and is undoubtedly of value, the following description will, perhaps, be acceptable.

‘The operator seizes the child under the arms, the index finger of each hand in the armpit, the thumbs over the anterior portion of the trunk, the remaining fingers placed along the back, which is turned to the operator, while the head is steadied between the palms of the hands. As the operator stands, the child, so held, is allowed to swing between the outspread knees. The tractions thus made in both directions upon the ribs, by the pectoral muscles above and the abdominal muscles below, produce the widest separation of the ribs, while the weight of the liver causes descent of the diaphragm, and thus inspiration is produced. Next, with extended arms, the operator swings the child upward until the breech and legs fall forward toward the abdomen. When the body is thus doubled up the ribs close together, the diaphragm is pushed upward, and forcible expiration takes place, driving out through the mouth and nostrils great quantities of mucus and fluids—when respiratory movements have taken place prior to birth—from the air-passages. Still keeping the arms extended, the child should be allowed, after a few moments (?) to swing back between the legs. In

this way expiration and inspiration are to be maintained until spontaneous respiration occurs. As the temperature is apt to fall during the swinging movements, warm water should be kept handy in which to occasionally plunge the child.

We desire to call attention to another method, the value of which we have, on more than one occasion, demonstrated to our intense satisfaction, and which has, we think, advantages over that just detailed, in being more simple, seemingly not so rough, and we judge, equally efficacious.

We disclaim originality. Credit in that direction is due to Professor Harvey L. Byrd, of Baltimore, who, in an article entitled 'A "Speedy Method" in Asphyxia,' published in the *Baltimore Medical Journal*, November, 1870, and reprinted in the half-yearly *Compendium of Medical Science*, January, 1871, described its *modus operandi*, and cited cases confirming its value.

The method we present has, however, some modifications of Dr. Byrd's, and is as follows.

The infant being upon its back, firmly grasp the outer thigh, the index finger and thumb encircling, and the inner limb resting on the forearm, while the little finger is extended as far as possible up the back to form a fulcrum with the corresponding finger of the opposite hand. In the hollow formed by the thumb and forefinger of the right hand allow the neck of the infant to rest, with the palm under the shoulders and the little finger extending down the back to meet its fellow of the other hand. Now, gently and regularly depress the vertex and inferior extremities as much as practicable below the horizontal, say forty-five degrees, thus facilitating inspiration, and, after a proper interval, elevate them to the same extent, forming a concavity of the chest and thereby forming expiration. Continue these movements without interruption, taking care to permit no impediment to the exit and entrance of air during the upward and downward movements of the head and chest, and also exercising caution against too much lateral motion of the head during their continuance. The conjoined use of Desormeaux's douche, or a little cold water dashed occasionally on the epigastrium, will tend to enhance the efficacy of this method; indeed, its employment does not at all preclude the use of whatever auxiliary measures may be deemed advisable.

In Dr. Byrd's plan, the ulnar edges of the hands are placed in contact to form the fulcrum beneath the infant's back, the thumbs extended and the radial borders being alternately elevated and depressed. Simulate the normal respiratory act. Modified as above, its advantages are: a much firmer hold of the body is obtained, thereby diminishing the chances of slipping; it is less fatiguing to the operator, and it obviates a necessity for an attendant to prevent any considerable departure of the head from its antero-posterior axis with the vertebral column.

We speak whereof we know regarding the efficacy of this method, having had ample evidence in that direction. Among other cases, notes of a remarkable instance of infantile asphyxia, in which it was, we confidently believe, the life-saving instrumentality, not only in establishing respiration after a notably protracted absence, but in maintaining existence through a perilously prolonged narcosis, go far in substantiating the statement of its originator, that 'it is, *par excellence*, the remedy in the asphyxia of newly born infants.'

SLOCUM ON HIRSUTIES GESTATIONIS.—In the *New York Medical Record* of July 10, the following case of hirsuties gestationis is related by Dr. Charles E. Slocum.

Mrs. R. has borne three children at full term, and suffered one abortion at six or eight weeks. A peculiarity that has attended each gestation, is the growth of beard on the sides of the face and under the chin. This hairy growth has uniformly started at the commencement of pregnancy, or become perceptible soon after the cessation of the menses, and continued until childbirth, and the uterus has assumed its antefecundated status.

Her attention is first called to the parts soon to be covered with hair by a sense of heat and itching, which is allayed but a short time by rubbing, and which continues about three months, with more or less annoyance, and then subsides to return again after accouchement and remain until the falling of the hair.

The hair is thick-set, fine and soft in texture, straight, and lighter in colour than the hair of the head. Its length at childbirth is one to one and a half inches, when its growth apparently stops, and after a period of time varying from four to six months (first child six months, second and third children four to five months), or about the time when the uterine system resumes its catamenial function, it falls, and the face assumes its normal smoothness.

This hirsute condition during gestation is the only peculiarity in this lady's history. She has uniformly enjoyed health. The menstrual flux was established when she was between thirteen and fourteen years of age, appeared regularly, and was attended with no peculiarity. From the age of fifteen to the time of her marriage, two years later, she suffered slightly from dysmenorrhœa, but not since marriage.

July 27, 1871, she gave birth to her first child, it being about one year after marriage; November 11, 1872, after one year, three and a half months, to the second; January 12, 1874, she suffered an abortion at one and a half or two months, experiencing but little trouble therewith; and November 13, 1874, ten months thereafter, her third child was born, apparently at full term, as it certainly was in full vigour.

At the time of her abortion the growth of hair on the face was very noticeable, and she became so soon again pregnant that the growth continued until the second conception was completed.

There has been nothing peculiar in the appearance of her children.

Mrs. R. is of medium height and size, with dark-brown hair, hazel eyes, and a fair skin, which becomes of a darker hue when she is in the pregnant state. There was but little nausea following conception, and she was vigorous and able to attend to her household duties at all times. No change or peculiarity other than that already noticed occurs.

J. MILNER FOTHERGILL, M.D.

GOODELL ON THE MANAGEMENT OF HEAD-LAST LABOURS.—In a paper read before the Philadelphia County Medical Society (*Philadelphia Medical Times*, March 20, 1875), Dr. Goodell remarks that mortality in these cases is, by some authors, such as Churchill, placed at one-third; by Hodge at 33 per cent.; and by Capuron and Cazeaux at 75 per cent., in difficult cases. He believes that the causes are—first, their irregularity of the presenting part,

and the escape of all the liquor amnii as soon as the membranes rupture; next, the delay in the expulsive stage; and then, when the breech is born, compression of the cord and placenta, the partial detachment of the latter, the embarrassment to the uteroplacental circulation from the lessened size of the womb, and, finally, what is not uncommon, the long pauses between the pains. There is yet another cause, which the author thinks is not so generally known, but which is the most frequent cause of death before delivery, or of feeble vitality, or of death after delivery; namely, arrest of the placental circulation inducing a craving for oxygen on the part of the child, which sets up prematurely respiratory movements; the air not gaining access to the nostrils, the bloody mucous discharges in the maternal passages are sucked up into the lungs, plugging up the bronchi, tending to produce immediate asphyxia or death within a few days from lobular pneumonia—*atelectasis pulmonum*. He strongly recommends the following mode of treatment. Firstly, shorten the first stage of labour by ten or fifteen-grain doses of chloral hydrate, given every half hour, which promptly relaxes the rigid cervix; prevent, if possible, the early rupture of the membranes, retaining them, if possible, until the os is fully dilated; then break up the wedge which is formed by the placement of the foetal parts, by bringing down one leg, as advised by Dr. Barnes, especially one nearest the pubic arch, but use no traction, unless absolutely necessary, and then only during a pain, lest the arms should become distended. This operation should not be delayed after the foetal heart-beats become feeble. Should the breech have descended into the pelvis, then, instead of applying the blunt hook to the groin, use the forceps, supplementing it by suprapubic pressure; deliver the head as rapidly as possible. If the arm cause an obstruction, do not hesitate to use force, even to the breaking of a bone, to bring it down, as the life of the child is imperilled and every moment is of consequence. Traction should then be used, and the amount of force which can safely be used is very great. Dr. Matthews Duncan, in an article in the *British Medical Journal* for December 19, 1874, showed that the neck of a small dead child can resist a force of 100 to 110 lbs. without dislocating the vertebrae, and a force of about thirty to forty pounds more before producing decapitation. In the living child, Dr. Goodell considers that a still greater force can be safely applied; in fact, he believes that, in the stooping position of the accoucheur, it would be difficult to use greater force than the neck of the child can bear. The great object is to exert the minimum traction-force in such a way as to produce the greatest possible mechanical advantage. The mechanism of the delivery of the foetal head in breech-cases he describes as follows. The head is made up of the frustums of two cones meeting on a common base, the one anterior to the biparietal diameter, the other posterior—the ‘fore cone,’ and the ‘hind cone.’ Looking from below upwards the head is sure to be wedge-shaped; this is designated the ‘wedge.’ When the foetus is pulled through the brim, except in rare cases of contracted pelvis, the bitemporal diameter or fore cone engages the conjugate diameter of the pelvis; the biparietal and broader hind cone passes to one or other side of the osseous points (promontory of sacrum and symphysis pubis). The shorter the conjugate diameter the more inflexible is this law. The head descends unflexed, the transverse diameter of the pelvis being usually large enough to admit the passage

of the occipito-frontal diameter of the foetus. The chin can scarcely ever catch against the edges of the brim. This adjustment of the head is due to the round hard surface of the occiput, which glides off the sloping promontory. The broader surface of the occiput against the brim of the pelvis causes the head to flex and rotate. If the theory of the mechanism is the sound one, the occipital protuberance is the more likely to hook over the edge of the brim and cause a flexion of the head, which is exceedingly undesirable during the passage of the head through the conjugate diameter. The rule, therefore, to pull the face downwards is pernicious in its effects, and entails loss of traction-power. Dr. Goodell adopts two methods to extract, according as the pelvis is contracted in its conjugate diameter or not. In the one case, he applies the traction-force in the direction of the outlet, in order to get the sacral side of the head as low down as possible; this descent of the head is further increased by the assistant pressing over the pubes backwards and downwards; without for a moment retarding, but rather increasing, the original traction force, its direction is reversed and the body of the child swept behind the coccyx. The sacral side of the child's head is deeply pressed in, and the pubic glides round the pubes. Should the neck be short or the pelvis deep, pass a muslin sling over the neck so as to meet in front of the chest, and pull. Should this not succeed, when the size of the head rather than narrowness of the brim is at fault, he uses a pump-handle movement with a range of oscillation for the axis of the outlet anteriorly to as far behind as the coccyx, posteriorly; when the promontory of the sacrum is sharp, the head will not descend until either the sacral parietal bone is broken in or deeply depressed. To facilitate this mode of action, he advises the patient to be placed on her back, as an assistant can use more abdominal pressure; the nates are brought to the edge of the bed. As soon as the head escapes through the brim, which it does with a jerk usually, the body of the child should be brought round in front of the woman's abdomen; if traction fail to deliver, then apply forceps, even at the risk of rupturing the perinaeum, as the life of the child is in imminent danger, and is of more consequence than the soft maternal parts, which can be readily stitched up. Since the writer has adopted this method, his mortality in breech-cases has greatly diminished.

W. C. GRIGG, M.D.

BOISSARY ON THE CEPHALOTRIBE AND ITS USES.—In a communication presented to the French Société de Chirurgie (*Bulletin Général de Thérapeutique*, June 30, 1875), M. Boissary points out the abuses made of cephalotripsy in certain cases where the forceps, properly applied, would be sufficient to terminate the delivery. He recalls a certain number of cases in which he succeeded in extracting the foetus with the forceps, whilst colleagues who had preceded him could not finish the delivery without using the cephalotribe. Similar errors cannot be avoided in the future, except by giving a more complete education in the art of delivery to young practitioners, and by teaching them the practical application of the forceps.

MOUSSOUS ON A CASE OF TRIPLE BIRTH.—Dr. Moussous (*Archives de Tocologie*, August, 1875) gives the history of a case where three living children were born prematurely at the eighth month, owing to the excessive distension of the abdomen.

The pains were very feeble, and gradually ceased; the first child, which presented by the head, being delivered by the aid of forceps; the second presented by the breech, and the third by the head. The placenta was a single mass, weighing over two-and-a-half pounds. The cords were inserted in three different ways; one being central, another on the margin, and the third upon the membrane, about three finger-breadths from the placental edge. The vessels from each cord anastomosed with the other vessels.

There were three amniotic bags, but it was difficult to ascertain the exact condition of the chorion.

The development of the children accorded with the insertions of their umbilical cord into the placenta, that attached to the centre being the most vigorous. The children were living a month after birth. The mother did well.

LEBLOND ON SPONTANEOUS ABORTION.—Dr. A. Leblond (in *Annales de Gynécologie*, August, 1875) contributes an article founded on clinical experience, eleven of the cases being recorded in relation to the medico-legal value of the integrity of the membranes in abortion in the early months of pregnancy. He summarises his conclusions as follows.

1. When abortion occurs '*en bloc*,'—that is to say, the embryo being contained in the sound membranes exempt from solution of continuity, it is very probable that the abortion is spontaneous; at least, that the abortion has not been provoked by agents which determine the expulsion of the ovum without implicating the membranes.

2. When the membranes are ruptured, but healthy, we ought to conclude that in all probability abortion has been provoked.

3. When the membranes present pathological alteration, the medico-jurist can conclude nothing from an examination of the expelled product. He should remember, nevertheless, that the abortion results probably, then, from disease of the ovum, and that it is due to spontaneous production.

NEPVEU ON THE RUPTURE OF OVARIAN CYSTS.—Dr. G. Nepveu (*Annales de Gynécologie*, February, 1875), has collected from various sources the results ensuing from this accident; references being given to 155 separate cases, 128 of which ruptured into the peritoneal cavity, eleven into the large intestine, the others perforating the abdominal wall, bladder, vagina, and uterus. Of 127 of these cases, sixty-three proved fatal. The various modes of dealing with this complication are briefly noticed, the author contenting himself with indicating the different methods resorted to.

PINARD ON A CASE OF CÆSAREAN SECTION POST MORTEM.—Dr. Pinard (in *Gazette Obstétricale*, August 5) gives an instance of a primipara, aged twenty-two, who died from a cerebral tumour of hæmorrhagic origin, after a severe attack of epileptiform convulsions.

Cæsarean section was performed five minutes after death, the child being resuscitated with some little difficulty, and dying three hours afterwards.

GUENEAU DE MUSSY ON METRORRHAGIA ARRESTED BY THE APPLICATION OF HEAT TO THE LUMBAR REGION.—Dr. Noel Gueneau de Mussy (*Annales de Gynécologie*, July, 1875) gives the history of two cases where hæmorrhage was arrested by this

method, after various other remedies had been tried in vain. The author regards the cases as interesting, and the method worthy of further investigation.

PORTAL ON THE EMPLOYMENT OF CHLORAL IN PUERPERAL CONVULSIONS (ECLAMPSIA).—Dr. Portal (in *Bulletin Général de Thérapeutique*, August 15, 1875), mentions three cases in which chloral was employed with success. They were all the subject of albuminuria; the first was attacked six hours after parturition, the two others during labour. One was delivered naturally during the attacks of a still-born fœtus; the other was delivered of a living fœtus by the aid of the forceps, on account of the pains having disappeared when the attacks had ceased.

The first had had twenty-four attacks, coming on regularly every quarter of an hour; the second eight attacks and the third seven. Ninety grains (six grammes) of chloral were administered in each case. In the two latter, twenty-five milligrammes of morphia were also injected.

All the patients recovered. In six previous cases treated by leeches and inhalation of chloroform, the author 'had six deaths to deplore.'

LEWALD ON THE ABSORPTION OF MEDICAMENTS BY INFANTS FROM THE MOTHER'S MILK. Dr. Lewald (*Lyon Médical*, June 20, 1875) records some interesting experiments of this nature upon animals. He concludes that we can administer a greater quantity of iron to the infant by means of the mother's milk than by any other method. Bismuth, oxide of zinc, lead, arsenic, antimony, iodine, and its compounds were all detected in the milk, in various quantities, and at varying intervals after its administration to the mother. Quinine and mercury also pass readily into this secretion. The author thinks it is not demonstrated that alcohol and the narcotics can be eliminated by the milk. [He can scarcely have observed the children in large towns, or noted the instances of narcotism in the infants by the administration of opiates to the mother.—*Rep.*]

PUECH ON COMPLETE ATRESIA OF THE FEMALE GENITAL ORGANS, OR UNILATERAL HÆMATOMETRA.—Dr. Albert Puech (*Annales de Gynécologie*, August, 1875) concludes an interesting series of four articles on this subject in the present number.

He tabulates twenty-eight cases collected from various sources, where operation had been resorted to, and, excluding one where the result is not given, shows that no fewer than eight of these died, most of them from peritonitis.

He gives in detail the history of twelve cases which are of much clinical interest. After discussing the various modes of operating, he contends that the success is less intimately dependent upon the mode of operation than upon the condition of the patient at the time of operation. His conclusions are thus briefly summarised.

Complex atresia is spoken of when, the genital canal being double, one of the halves is imperforate in some part of its extent.

The obstruction was found eleven times at one of the uterine orifices, and twenty-three times in the vagina.

In twenty instances it was on the right, and eight times only on the left side.

In two cases the uterus was bilocular or partitioned; the others were instances of bicorned uterus in different degrees.

The catamenial secretion from the side of the

uterus where the aperture was patent was more or less regular, sometimes even suspended for many months, but with some few exceptions moderate in quantity.

The phenomena of retention caused by the imperforation began sometimes before the first menstruation, sometimes coincidentally, sometimes later. They consisted in pains at the menstrual period, generally coincident with the hæmorrhage, in the loins and sacral region, internal pressure directed towards the vulva, and above all in the appearance of a tumour occupying one or other side of the hypogastrium and a great part of the pelvic cavity, interfering with locomotion, and producing dysuria and even retention of urine.

The tumour was elastic, more or less voluminous, painful on pressure, moderately resistant, sometimes even plainly fluctuating, limited above, inclining to the side, and losing itself below in the pelvis proper. A tumour at the vulvar outlet, or in the genital tract, was also discovered, depending upon the seat of obstruction.

When the obstruction was at the vaginal outlet, the vulva was half opened by a cervical tumour, violet coloured, evidently fluctuating; the cervix being pushed up, and often beyond the reach of the finger.

When the obstruction was in the middle or upper part of the vagina, the vulva was normal, as also the vagina below the seat of obstruction.

Where the obstacle existed at one of the uterine orifices the open os was flanked laterally by a spherical tumour, pushing the cervix to the opposite side.

Whatever was the seat of the obstruction, pressure upon the hypogastric tumour was transmitted to the finger *per vaginam*, and *vice versâ*. In proof of these different data, exploration by means of the sound inserted in the horn remaining patulous confirmed the diagnosis of a complex atresia, and prevented its being confounded with congestive dysmenorrhœa, ovarian cysts, periuterine hæmatocèle, etc. In cases of doubt, an exploratory puncture clears up the diagnosis.

The modes of termination are identical with those of simple atresia; spontaneous rupture of the obstacle; perforation of the intermediate partition between the two horns; passage of blood from the horn into the Fallopian tube, and thence into the peritoneal cavity; peritonitis, provoked by the repetition of the crisis.

Treatment allows two indications; 1. The evacuation of the retained blood; 2. The maintenance of the opening created.

On account of the considerable mortality (eight deaths in twenty-six cases), the operation requires great precautions. It should be effected seven or eight days after the cessation of menstruation, as soon as possible from the commencement of the accident.

Considering the tendency to recur, the obstacle should be opened largely, and not punctured. Contrary to the practice of many, we ought to abstain from all pressure upon the tumour, and from prolonged examinations, which predispose to peritonitis.

ARTHUR W. EDIS, M.D.

GUÉNIOT AND BLOT ON THE USE OF MECHANICAL FORCE IN DELIVERY.—M. Guéniot read at a late meeting of the Paris Société de Chirurgie (*Bulletin Général de Thérapeutique*, June 30) a

paper on this question, to the study of which he had been led by the numerous presentations of obstetric apparatus which have lately been made. The machines used in surgery, from ancient times, were disused in the eighteenth century in consequence of a declaration of the Royal Academy of Surgery to the effect that they were dangerous. At the present day they are again in favour, and all surgeons, when they wish to use considerable and continuous power, have recourse to them. No one can contest the services they render when it is required to overcome muscular resistance, to rupture ligaments, or break bones. But may it thence be concluded that mechanical means are useful in obstetrics? Here, as a matter of fact, there is no muscular resistance to surmount, no bones to break, no ligaments to rupture; besides which, the wounding of the organs beyond the pelvis is far more dangerous than that of the muscles and bones. These considerations alone would almost be sufficient to exclude machines from surgical practice. However, prolonged and vigorous tractions are, in certain cases of dystocia, really useful both to the mother and child. Generally speaking, the unaided strength of the operator is enough, but, if efforts be prolonged for a certain time, fatigue supervenes, and the tractions are no longer equal; it even sometimes becomes impossible to continue them. In these cases a well-regulated machine, the intensity of which would vary according to the desire of the operator, would unquestionably be of service. The use of machines in obstetric practice is, therefore, in principle, logical and legitimate. The difficulty is to know in what cases recourse should be had to them. M. Guéniot believes that they are indicated when the pelvis is malformed, or when the head of the fœtus is of uncommon size, but never when the obstacle is constituted by the soft parts. He likewise proposes at a subsequent meeting to study the particular cases in which the accoucheur is authorised to have recourse to traction apparatus, and all the characters which they should present.

M. Blot, on the same occasion, expressed himself as completely opposed to the use of mechanical means in obstetrics; the power produced by them being blind and capable of giving rise to the most serious accidents. This power is only necessary in cases where there is an enormous disproportion between the capacity of the pelvis and the fœtus which must pass through it; generally the hand of an expert accoucheur can terminate the delivery, with the help of a good forceps. The most important thing is to establish the diagnosis and to recognise exactly the position of the fœtus; handiness will afterwards suffice to perform the necessary versions. When, in some quite exceptional cases, the extraction of the fœtus cannot be accomplished, there is no further cause for hesitation; nine times out of ten the fœtus is dead. The only thing to be done is to save the mother, and for that the cephalotribe is sufficient. M. Guéniot, however, persisted in his belief that, in violent and prolonged manipulation, the strength becomes exhausted and loses all regularity; he maintains that with a well-regulated machine, provided with a dynamometer, effects can be produced which could not possibly be obtained by the hand alone.

It is, in fact, impossible to determine the precise amount of power to be employed in an obstetrical operation, for it depends on the individual constitution; but it is certain that, with tractions of from

forty to sixty kilogrammes, the parturient woman is not exposed to any danger. Besides, when prolonged efforts of traction are necessary, the hand ceases to give the sensation of the strength employed.

HODGE ON COMPRESSION OF THE FŒTAL HEAD BY THE FORCEPS AND CEPHALOTRIBE.—Dr. H. L. Hodge (*American Journal of Obstetrics*, May, 1875) gives his personal observations upon the use of the forceps, as a compressing power. He believes that the impropriety of compression sanctioned by some of the best obstetric authorities is fundamentally erroneous, and greatly restricts the practical use of obstetrical instruments. The following propositions serve to indicate the nature of his views. 1. The vault of the foetal cranium is so constructed as to render it capable of compression. 2. Compression does actually occur in labour. 3. Compression of a foetal head can be effected to a great extent with safety to the child. 4. The death of the foetus during labour from pressure results from two cases—(a) the diminution or suspension of the functions of placenta and funis, and (b) from the cessation of the circulation generally. 5. Compression upon the head of the foetus can often be made by the forceps, not only with safety, but with great advantage during labour. 6. Delivery in moderately contracted pelves can be effected with greater safety by the forceps than by podalic version. 7. The obstetric forceps, when well constructed, is the best extractor in cases of dead children, and also in cases of craniotomy. 8. On the principles thus inculcated, the introduction of cephalotripsy into obstetric practice by M. Baudelocque, junr., should be regarded as the greatest improvement in operative midwifery since the seventeenth century.

HICKS ON REPOSITION OF THE PROLAPSED UMBILICAL CORD.—Dr. J. Braxton Hicks (*London Obstetrical Journal*, 1875), recommends the following as an easy and efficient plan for replacing a prolapsed funis. The patient being on the left side, in the usual obstetric position, one hand is placed over the lower abdomen, and the other is introduced into the vagina. The funis is then to be passed within the os, and the head being lifted up, it is to be passed by its side, and then above it. The external hand should have already, during the act, made out the position of the head, and now should press it downward toward the os. That it really does so, the internal hand will readily tell. While the head is pressed down from without, the internal hand is withdrawn slowly, taking care that the funis does not follow. The external hand continues its pressure over the period of two or three pains. When the uterus has fairly settled around the head the patient may be left, for the funis is effectually prevented from again being prolapsed.

ROBERTSON ON TWO FŒTUSES SUPPORTED BY ONE PLACENTA AND ONE SET OF MEMBRANES.—Dr. J. C. Robertson (*Medical and Surgical Reporter*, May 29, 1875), reported an obstetrical case having the following points of interest. 1. There was one placenta, one chorion, and one amnion—yet two foetuses. 2. Both foetuses were contained in the same amniotic cavity, in no way united, and presenting no evidence of an intervening membrane. 3. The placenta presented a healthy appearance, nicely developed, very similar to an ordinary placenta at a single birth. The woman was the mother of four healthy children, and supposed herself five months pregnant. She made a good recovery.

PSYCHOLOGY.

VAN ANDEL ON HYPODERMIC INJECTION OF ERGOTINE IN CERTAIN CASES OF ACUTE MANIA.—In the *Allgemeine Zeitschrift für Psychiatrie*, Band xxxii. Heft 2, Dr. A. H. van Anandel reports the results of cases of mania in which he has injected ergotine, together with his reasons for pursuing this method of treatment. This paper is especially interesting when considered side by side with that by Dr. Mann, an account of which was given last month in the LONDON MEDICAL RECORD. The author first gives a short description of the class of cases to which he considers this plan most applicable; they are those in which a previously healthy patient, after a week or two's restlessness, suddenly breaks out into a state of violent mania, with raised temperature and symptoms of congestion in the head, such as flushed face, injected conjunctivæ, throbbing carotids, contracted pupils. In these cases of acute delirious mania opium is contraindicated; tartar emetic in large doses quiets the patient, but injures the digestion, and fails to cure the insanity; prolonged baths or the wet sheet are of doubtful benefit. Ergotine had previously attracted attention by its use in the treatment of migraine, and Crichton Browne had given it in some cases of epileptic insanity and chronic mania without much result. Brown-Séquard saw the vessels of the meninges contract after the injection of ergotine, and this was confirmed by Hermanides. Van Anandel first used this treatment in the autumn of 1873. His patient was a female epileptic in the 'status epilepticus'; she had had a similar attack two years before, which had lasted a long time, and was not perceptibly benefited by the usual methods of treatment, viz., ice to the head, leeches, bromide of potassium, morphia subcutaneously, etc. Both in this case and in another similar one, in which death from exhaustion was feared, great good seems to have resulted from the new treatment; in the former case the attack did not last one third so long as the previous one had done. Each injection consisted of one decigramme (about one and a half grains) of ergotine in half a gramme each of glycerine and rectified spirit.

Another case is related pretty fully by the author. It is that of a robust sailor, aged forty, who, in one fortnight, had three distinct attacks of furious mania, each lasting several days. The latter two of these outbursts were treated by injections of ergotine, and the application of ice, with good results. The patient has since remained quite well. In all, fifteen injections were made in the fortnight, the same dose as above being given twice daily when required. The symptoms of cerebral congestion disappeared with each remission of the symptoms. This was the only case in which the injections were followed by small local abscesses, but these gave little trouble; in some other cases small tender swellings formed at the seat of injection. No disagreeable local results have been caused in cases where ergotine has been administered in this way for *post partum hæmorrhage*.

The author has now employed this method of treatment in many cases to counteract hyperæmia of the nervous centres. He reports the usual effects to be lessening of excitement, the gradual cessation of raving, crying and storming, the patient, although confused, becoming more manageable, and that sometimes the injection was followed by a refreshing

sleep. As cases of acute delirium are often of short duration and frequently are never sent to an asylum, it is desirable that any method of treatment which is followed by markedly beneficial results, should be known to the profession at large; but, as the author rightly remarks, further observation is needed, aided, if possible, by thermometer and sphygmograph.

NASSE ON THE TREATMENT OF PSYCHOSES BY OPIUM.—An abridged report of a paper by Nasse, in which he relates his experiences of the above treatment, is given in the *Allgemeine Zeitschrift für Psychiatrie*, Band xxxii., Hefte 3 and 4.

After reviewing the history of the methodical opium-cure in insanity, the author remarks that the discredit into which it has fallen of late is chiefly owing to the practice which prevailed some years ago in Germany of giving opium indiscriminately in all recent psychoses having undoubtedly yielded bad results, and partly also to the want of special indications for the employment of the drug. Nasse dissents from the ordinarily received opinion that opium in large doses only yields favourable results in melancholia and never in mania; it is in order to combat this view that he reports his experiences in the large institutions at Sachsenberg and Siegburg.

During twenty years he has treated 160 cases (forty-eight males and 112 females) by this method with the following results. Out of seventy melancholics (twenty males and fifty females) only six were cured (these were all females); whereas of seventy-six cases of mania (twenty-five males and fifty-one females) twenty-two were cured (seven males and fifteen females). Fourteen cases of delusional insanity (*Wahnsinn*) were also subjected to the treatment without any favourable result.

Of the melancholics the cases chosen were, as has been usually recommended, as recent as possible; the standing of the disease varied from one to three or four months, without seeming to influence the final result; they were frequently cases which exhibited suicidal tendencies or delusions of eternal perdition, but were usually free from hallucinations or bodily complications other than anæmia.

In mania, the treatment was never applied in recent cases; the author is convinced of the unfavourable influence of opium during the first few months; for similar reasons he rarely employs, in these cases, subcutaneous injections of morphia or hydrate of chloral, and then only for a short time. But we are to look for benefit from opium in cases of chronic mania of from four to seven or more months' standing, when the maniacal symptoms with sleeplessness, great excitability, emaciation, and anæmia, persist and threaten exhaustion and dementia, but in which there is no organic disease or deep brain-mischief. In men, these cases commonly follow intemperance, and in women they occur after serious hæmorrhages.

The cases of delusional insanity which were treated were generally of long standing, and such as exhibited melancholic tendencies.

The only cases which were reckoned as recoveries were those in which the symptoms did not recur after the cessation of treatment; and the patients were not discharged until they had been under observation several months. In melancholia often, but in mania less frequently, temporary improvement was observed during the treatment, but it ceased with the administration of the opium.

The method generally pursued was to commence with two grains twice a day and to increase the dose rapidly. The usual quantity given in the twenty-four hours was from four to eight grains, but in one case as much as twenty-four grains was administered. As soon as favourable results are evident, the increase in the dose should cease. The treatment was continued for from two to eight weeks or more, once for thirteen weeks with good effect. In discontinuing the opium, where it has had a good effect, the doses should be gradually decreased, but more rapidly than they were increased at the first. If good results were achieved at all, they were generally produced by doses of from four to eight grains in the day.

The effects of the opium-treatment upon the system were as follows. Considerable nausea was frequent; vomiting was rare and only occurred in cases in which the drug was otherwise ill-borne; in one half of the cases which ultimately recovered no nausea or other disagreeable effect was observed. Constipation was only caused at the first; later on there was rather a tendency to diarrhœa; sometimes attacks of colic occurred. As a rule, the frequency of the pulse was diminished; in one case it sank to 40, but with the cessation of the treatment it returned to 124. Itching and burning of the skin, which ceased with the administration of the opium, were repeatedly noticed. Contrary to views generally held, the weight of the body generally decreased during the treatment; in only eight of the twenty-eight cases of cure was there an increase; after the completion of the cure the weight rapidly increased, often to the extent of 30 or 50 per cent. Only one death occurred during the treatment: it was that of a melancholic and anæmic woman, aged fifty-two, who fell upon her left temple, and thus brought on an effusion of blood upon the brain; it remains doubtful whether the fall was in any way due to the opium treatment.

Nasse does not look upon hyperæmia of the brain, organic disease of the heart, or atheroma, as contra-indicating opium; he has had notable cases of cure when each of these conditions has been present. Also one remarkable recovery took place where organic disease of the brain was suspected, and paralysis of the face, tongue, and pupil existed.

The author believes the beneficial results of opium to be chiefly due to its sleep-producing qualities, the narrowing of the vessels and retardation of the circulation; he also ascribes to it a tonic effect upon the brain, and an indirect influence on nutrition. He does not deny that the drug may have a beneficial action in recent cases of melancholia outside asylums, but considers its effect to be very small in pure melancholies of several months' standing. On the other hand, he strongly recommends the opium-treatment for such cases of mania as are described above.

CHARLES S. W. COBBOLD, M.D.

TOXICOLOGY.

WADDEL ON ACONITE POISONING.—In the *Cincinnati Lancet* of July is a paper by Dr. Thomas Waddel, giving an account of a case of poisoning by aconite.

Mr. J. R., aged thirty-four, married, had been under treatment for nine days for an intermittent neuralgia of the supraorbital nerve and its branches, the pain coming on at 8 A.M., and lasting until evening, then

subsiding completely until next day. Before the attack, he had been in his usual health, which was sufficiently good to enable him to pursue his occupation as a carpenter. On March 16, about the usual time, pain again came up; tincture of aconite was used for a short time, but as it did not give immediate relief, Raspail's liniment was substituted. At 4 o'clock P.M. Dr. Waddel found him sitting up in bed; he had been sleeping a little; pulse 70, and regular; in answer to inquiry as to pain, he replied that he was 'perfectly easy.' At about fifteen minutes to eight P.M., Dr. Waddel was called in great haste to see the patient. The wife informed him that she believed she had, by mistake, given him one-third of a teaspoonful of the tincture of aconite root (which had been ordered as a local application) instead of his bitters (tincture of calumba and lupulin), about twenty minutes to half an hour before, and that he had since eaten a light supper; the patient himself calling her attention or the mistake by referring to the numbness of the lips, tongue, and throat, a few minutes before. Dr. Waddel found him sitting up in bed, considerably excited, but very rational. He said his feet were prickling and numb, as well as his throat, which had lost all feeling; pulse about 80, considerably weaker than normal; he had profuse sweating; disturbed respiration, and complained of nausea. Without any delay, an ipecacuanha emetic was given, followed by free draughts of warm water. About seven minutes later he was quietly reclining in bed, awake, and had not vomited. A catheter was passed into the oesophagus, when free vomiting took place. Warm water was again given, which was quickly followed by vomiting. This was repeated the third time. The food he had eaten was ejected with the vomited matter. The time consumed until the third act of vomiting, was about twenty minutes after Dr. Waddel first saw him. At this time his pulse became very weak, and he complained of numbness over his entire body; became delirious, and said he was dying; was very restless, jerking and jumping about; was with difficulty kept upon the bed. His symptoms were so alarming that Dr. Waddel, believing the stomach to be cleared, now gave him, at short intervals, four wine glassfuls of whisky, which he swallowed with a little difficulty, assisting in raising the glass to his lips with the back of his hand, as if his fingers were paralysed. In about twenty minutes after this, his pulse became almost normal, except stronger and fuller. The apparent anxiety and restlessness ceased to some extent, although he was still delirious, with symptoms of alcoholic stimulation, sitting up in the bed singing English ditties loudly. Pulse 70, full and strong; skin moist; respiration disturbed and shallow. This was the condition at nine P.M., about one and a half hours after taking the aconite. Dr. Waddel now left him for a short time (as his symptoms were much improved) to respond to an urgent call. On returning, about fifteen minutes to ten, he found him lying on the bed, very quiet, the nurse remarking that he thought his pulse better. On examination, Dr. Waddel found it about 50, strong and full; but was surprised to find it intermitting one of every four beats. On looking for the cause of this change, he immediately glanced at the respiration, and found scarcely any perceptible. The head was thrown back; the mouth open; there was frothy mucus on the lips; the head was cool; the eyelids closed; the whole surface was covered by profuse sweat. On inquiry, Dr. Waddel learned that he had been fully

conscious until ten minutes before his arrival, talking with the nurse in a rational manner regarding the accident, and expressing the conviction that he would not survive it; this last he spoke just before losing consciousness, and since then was unable to swallow. During Dr. Waddel's absence he took more stimulants; as nearly as could be ascertained, the amount was less than four ounces. Since being unconscious, there had been involuntary evacuations from the bowels, and reflex attempts at vomiting.

While Dr. Waddel was rapidly examining these symptoms, he gave a short gasp and ceased to breathe. The lips and face became livid, the pulse remaining the same. The patient was rolled over on the side, and artificial respiration (by compression of the chest) was made. After a minute he gasped, and under this stimulus resumed a weak spasmodic respiration, which would cease, if left to itself, for half a minute at a time. At half-past ten o'clock the pulse became very weak and intermitting. Whisky enemata were now given, while an assistant sustained the respiration. The sphincters were so relaxed that continuous pressure over the anus only succeeded in retaining a small portion of the stimulants, yet sufficient to materially strengthen the pulse.

This condition of things continued until eleven o'clock, P.M., when Dr. Thom saw the patient in counsel. So unceasing was the vigilance required to keep the patient from dying up to this time, that no accurate record could be kept of the pulse, respiration, or condition of the pupils. The latter were, however, noticed to be enormously dilated.

His pulse, at this time, counted 80 and full, with a strong tendency to intermit. The surface was moist, hands cold, respirations the same as for the past hour, only sustained artificially. After the arrival of Dr. Thom the patient was moved to the front side of the bed; while this was being done, although it took less than a minute, the respiration again ceased, and it was only by the greatest exertion that it was resumed. During this suspension of respiration, he presented all the characteristics of a dead man. Fifteen minims of tincture of nuxvomica, and thirty minims of tincture of digitalis, were given hypodermically during the next half hour; after which there was considerable improvement in the pulse and respirations. Whisky was also injected subcutaneously. At twelve o'clock it seemed for the first time safe to leave the respiration to itself, being still spasmodic, and superficial at 40 per minute. Pulse 75 and pretty regular; the skin was moist, head cool, pupils still much dilated and nonsensitive. During the past two hours he had had several involuntary evacuations from the bowels. From twelve to two o'clock there was little change in pulse or respiration, both were somewhat more frequent. An enema of carbonate of ammonia was given, but little was retained. The skin was more dry, the pupils were not so largely dilated, and the left was recovering sensibility. Inability to swallow still continued. Not the slightest muscular movement had been perceptible since ten o'clock.

At two and a half A.M., the respirations were 40, shallow and jerky, with mucous rales; pulse 88, very full and regular. The left pupil was more sensitive and nearly normal; the right largely dilated and immovable. There were more involuntary evacuations; no muscular movement.

Four A.M. Pulse 90, not strong, but regular; respirations 42, regular; the left pupil readily re-

sponded to light, the right was much less sensitive; he had hiccups, and involuntary evacuations.

Five A.M. Pulse and respirations faster, left pupil normal in size, right nearly so, skin dry.

Six A.M. Pulse 108 stronger and harder; respirations 36, pretty regular; no moist rales; pupils the same.

Seven A.M. Pulse 110; respirations 48 and jerky; both pupils were alike and normal in size for the first time, responding slightly to light.

Seven and a half A.M. Pulse same, but very weak; respirations 50. Twenty minims of fluid extract of digitalis were injected subcutaneously; and carbonate of ammonia was given. About nine A.M. the pulse was scarcely perceptible at the wrist. Respirations were frequent; the skin was covered by a clammy sweat. Twenty minims of fluid extract of digitalis were again injected, and a catheter was passed into the œsophagus, through which carbonate of ammonia, whisky, and water were slowly passed with a syringe. These were all retained and excited no reflex action except a slight movement of the corners of the mouth. In about twenty minutes a slight improvement could be noticed in the condition of pulse and respiration; still it was evident that a fatal issue could not long be averted. The pupils were now partly exposed; the eyeballs could be touched without exciting any reflex action; the whole surface was becoming more cyanotic.

At ten o'clock, Dr. Thom again saw the patient, and expressed surprise at the change in the patient's condition, concurring in the now hopeless prognosis. Still carbonate of ammonia, whisky, and milk were injected through the tube into the œsophagus every fifteen minutes, while digitalis and nuxvomica were given by the anus, but with little result beyond delaying the fatal issue, which took place at twenty minutes to two o'clock P.M., the respirations continuing pretty regular until within a few minutes before death. No pulse had been perceptible at the wrist since twelve o'clock.

Several times between the injections into the stomach, 'coffee-ground' fluid poured from the tubing depending from the mouth, staining the bedding and carpet a deep brown, evidently thrown up by reflex action of the stomach.

J. MILNER FOTHERGILL, M.D.

SANDERS ON DHATURA POISONING.—Dr. R. C. Sanders, civil surgeon at Muzuffernugger, relates the following cases in the *Indian Medical Gazette* for June.

These two cases of poisoning are interesting, from the *post mortem* appearances being exactly similar, and from the peculiarity of most marked venous congestion extending from the lips, along the larynx and trachea to the bifurcations of the bronchial tubes. This congestion was most marked, was uniform in its whole extent, but did not pass down the œsophagus. Their history is as follows. A sweeper, and his two children, aged nineteen and nine, were sitting near their house, when they were accosted by a traveller (a Mussulman) who, after talking to them for some time, gave them some coarse sugar to eat with their rice, and left. The father ate a small quantity, and gave the greater part to his two children; he quickly became insensible, and remained so until evening, when consciousness returned, and he found the two children dead. The bodies were sent in for examination by the police.

I.—Mussamat Badamo, a young, fat, well-deve-

loped woman, nineteen years of age, had a large number of zinc ornaments on the body. The face was swollen and congested; the eyes were intensely congested, chemosed, the pupils widely dilated. Bloody froth issued from the nose; the mouth and tongue were dark blue from congestion; the hands were clenched, the nails blue; on the left buttock and right leg the skin was rubbed off in large patches; the wounds were discoloured by dirt. Rigor mortis was persistent. The scalp was much congested, and blood was effused over the occipital region. The brain-membranes were gorged with blood; the sinuses were full of dark blood. The brain-substance was much congested. Each lateral ventricle contained one drachm of serum. The choroid plexus was turgid from congestion; the medulla oblongata was much congested. The right lung was adherent and much congested posteriorly; the tongue, fauces, larynx, and trachea were blue from congestion, which extended to the smaller bronchial tubes. The heart was healthy; its substance was extremely flabby. The stomach contained a little food, mixed with which were seeds of the dhatura alba. All the other organs were healthy.

2.—Buju, a young, healthy, well developed boy, about nine years old, had bloody froth issuing from his nostrils. The face was congested, the eyes chemosed, the pupils widely dilated, the lips livid. The body was covered with fine dirt; on the left buttock and calf of the left leg, as also on the right leg, the skin was rubbed off in large patches; the wounds were dirty; hands clenched; nails blue. Rigor mortis was persistent. The scalp was much congested; blood was effused posteriorly; the membranes of the brain were much congested; the brain was congested. Each lateral ventricle contained serum; the choroid plexus was intensely congested, erect, and turgid. The lungs were congested posteriorly. The mouth, tongue, fauces, larynx, and trachea were much congested, blue in colour. The congestion extended, without intermission, from the lips to the smaller bronchial tubes. The heart was empty and flabby. The stomach contained semi-digested food, and dhatura seeds mixed with it; it was healthy. All the other organs were healthy.

These two bodies were examined within twenty-four hours of death; in each, large swollen seeds were found in the stomach, and it was not until they had dried that they were recognised as dhatura, when they exactly resembled the figures, in Taylor's work, of 'Dhatura alba.' The girl's stomach contained seventeen, and the boy's eleven seeds.

Urgent thirst is mentioned as one of the symptoms of dhatura poisoning. This might be accounted for by the extraordinary congestion of the mouth, throat, and respiratory tract shown in the above cases, but I have not in any work seen an account of this symptom; I should be glad, therefore, if in future cases of dhatura poisoning it were specially looked for; so that, if constant, it might be placed on record.

The seeds were verified by the chemical examiner.

I accounted for the large superficial wounds on the buttock and legs, in each case, and for the blood being effused beneath the scalp posteriorly, by the bodies having been violently convulsed. The clothes of the woman, as also the body of the boy, being covered with fine dust, would also point to the conclusion that they had rolled over and over upon the ground.

SCHUMACHER AND SPÄGLER ON A CASE OF FATAL POISONING WITH NITRO-BENZOL.—The authors describe in the *Wiener Medicinische Wochenschrift*, no. 12, 1875, the case of a boy, seven years old, who took an unascertained quantity of nitro-benzol. At the end of two hours (which had been spent in the open air) vomiting and torpor set in, and continued till death, eight hours later. The vomited matter had a smell of bitter almonds; and the same odour was perceived at the necropsy (about sixty hours after death). The blood was found to be thin and dark-coloured; but on exposure to the air assumed a clearer red colour. The right side of the heart and the large veins were distended with blood. The brain and the sinuses of the dura mater were congested, as were also the lungs, which presented subpleural ecchymoses. There were also small effusions of blood in the mucous membrane of the stomach and small intestine.

A. HENRY, M.D.

DERMATOLOGY.

KAPOSI ON RECURRENT ZONA.—Dr. Kaposi [Moritz Kohn] relates in the *Wiener Medizinische Wochenschrift* (no. 22) the occurrence of this disorder for a third time in the same patient. The two former attacks were narrated in the same journal last year (nos. 25 and 26), and an abstract was given in the LONDON MEDICAL RECORD for November 25, 1874.

The patient, Marie Poje, a hospital nurse, was first attacked by severe zona of the left arm and shoulder in the spring of last year, and recovered by July; two months later a similar eruption appeared on the right arm, and on January 15 following the third began. Numerous scars, some slight and pale, others darkly coloured, and others again thick, large, and almost cheloid in appearance, the remains of the first attack, were seen scattered over the right arm, shoulder, and breast. The new eruption consisted of two large circular patches which occupied the dorsal aspect of the right forearm from the wrist to a third of the distance to the elbow. That covering the ulnar side was red, swollen and smooth [erythema exudativum]; that on the radial side was brown or yellowish in the central part, while the edge was of a bright scarlet colour. Both patches were painful, and the patient was somewhat feverish. Next day the radial disk had grown much darker and flatter; the other one, which had become the site of some subcutaneous hæmorrhage, was also dark and depressed, but the red edge was now covered with eight or ten clear vesicles, each as big as a hempseed. Besides these two large patches, there were now apparent two streaks of red and yellowish-green (hæmorrhagic) discoloration, running obliquely towards the elbow on the extensor surface of the same forearm.

January 17, 1875. The first patch was dried up; the second had extended further, with a fresh outbreak of vesicles. The two streaks which appeared on the previous day were also becoming depressed, dark, and hard, but a fresh red spot had appeared close to the elbow, preceded by pain.

January 18. The two streaks on the forearm were now surrounded by a red edge, which was covered with vesicles, and fresh red spots had appeared between the old ones. These were now themselves covered with umbilicated scabs, corresponding to the pre-

vious vesicles. The area of the affection had not spread, and the patient's general condition was more comfortable.

January 20. The only fresh eruption was a crowd of vesicles on the patch (now as large as half-a-crown) upon the elbow. The other parts were undergoing involution.

January 21. Near the wrist two fresh, red, and painful patches had appeared, each with a discoloured centre from ecchymosis. No fresh vesicles had formed, and those of the previous day were drying up like the rest.

January 22. New vesicles appeared on the elbow. Scabbing was going on elsewhere. From this date no fresh eruption appeared, and the crusts gradually dried up and fell off, leaving a red and depressed surface free from ulceration. On February 15 the patient was well. The treatment was expectant throughout.

P. H. PYE-SMITH, M.D.

RAYNAUD ON THE RELATION BETWEEN EXOPHTHALMIC GOITRE AND VITILIGO.—Dr. Raynaud (*Archives Générales de Médecine*, June, 1875) gives five cases of exophthalmic goitre, culled from various sources, in the course of which patches of vitiligo appeared on various parts of the body. Beyond the observation that vitiligo is more common in men than in women, except when congenital, that it attacks by preference persons of dark complexion, that it is sometimes, though rarely, hereditary, and has a certain analogy to Addison's disease, viewed as an imperfect vitiligo, little has been made out with regard to its pathology. Mr. Hutchinson has pointed out that although no known cachexia appears to set up a predisposition to the affection, the symmetry of the cutaneous patches is suggestive of some pre-existing general fault of the circulatory or nervous systems, and is opposed to the hypothesis of a parasitic origin. Without offering any explanation of the co-existence of vitiligo with exophthalmic goitre, Dr. Raynaud thinks that the coincidence should not be allowed to pass unnoticed. [The nature of the connection between the two diseases deserves further investigation. I may state, perhaps, that although I have carefully examined a considerable number of cases of each of these two affections, I have never met with both in the same individual in a single instance.—*Rep.*] W. B. CHEADLE, M.D.

RECENT PAPERS.

- On Anal Eczema. By Dr. Verité. (*La France Médicale*, June 26.)
- On the Curative Treatment of Anthrax by Phenic Acid. By Dr. Estradères. (*Bulletin Général de Thérapeutique*, June 15.)
- On Lupus Erythematosus. By Dr. Louis Duhring. (*Philadelphia Medical Times*, June 5.)
- On the Etiology of Infantile Eczema. By Dr. Taylor. (*American Practitioner*, June, 1875.)
- Goa Powder and Poh di Bahia in the Treatment of Eczema Marginatum. By Dr. G. Thin. (*Practitioner*, July, 1875.)
- On Serious Scrofuloderma of the Bucco-Pharyngeal Mucous Membrane (Serious Scrofulous Anginas, Lupus of the Throat). By Dr. Homolle. Paris: 1875.
- On Chronic Superficial Angina. By Dr. Justin Lemaistre. Paris: 1875.
- Case of Rheumatismal Purpura of the Erythematous Form. (*Gazette des Hôpitaux*, July 1.)
- Classification of Skin Diseases, according to their Secretary or Non-Secretory Characteristics. By M. E. Guibout. (*Gazette des Hôpitaux*, June 22.)

OPHTHALMOLOGY AND OTOLOGY.

WEBER-LIEL ON THE MAKING OF PERSISTENT OPENINGS IN THE TYMPANIC MEMBRANE.—In no. 4 of the *Monatsschrift für Ohrenheilkunde* of this year, Dr. Weber-Liel, of Berlin, reports three cases in which he made perforation of the tympanic membrane by the method proposed by the reporter in the *Guy's Hospital Reports* of this year, viz., making a large trepanation in the membrane and in the cicatrix formed making another perforation. Two cases were successful, the third did not continue to attend the clinique and the result could not be determined. Since Sinrock's method of perforating by means of sulphuric acid was published Dr. Weber-Liel has been using it, and proposes to make the preliminary perforation by it. [Before seeing this article of Dr. Weber-Liel's, the reporter believed that the method proposed by him in the *Guy's Hospital Reports* of this year, was his own; but it seems that Dr. Weber-Liel had proposed the method in 1871, and reported a successful case in that year. The reporter has at present several cases under observation, in which a perforation has been effected by means of sulphuric acid, and in which he waits the full formation and hardening of the cicatrix before making the second perforation.—*Rep.*]

URBANTSCHITSCH ON THE FORM AND POSITION OF THE PHARYNGEAL OPENING OF THE EUSTACHIAN TUBE IN MAN.—Dr. Victor Urbantschitsch, of Vienna, gives a short notice on the above subject in the *Archiv für Ohrenheilkunde* for July. The form and the lumen of the pharyngeal opening he finds very varied, sometimes appearing as a fissure, occasionally having the form of a pear with the base generally upwards, sometimes having an ellipsoidal or three cornered, or kidney-form figure. He considers that the formation of the opening is greatly influenced in many cases by the ligamentum salpingopalatinum described by Zuckerkandl, which runs from the pharyngeal end of the lateral cartilage downwards to the palate. In conjunction with the under portion of this ligament Dr. Urbantschitsch finds in many preparations which he has examined, a series of tendinous fibres which arise from the ligamentum salpingo-pharyngeum, and from the under end of the middle cartilage, and pass partly to the palatal muscles and partly joins with the ligamentum salpingo-pharyngeum.

The direction which the opening generally takes is an oblique one from above forwards to below backwards, only exceptionally being seen vertically or horizontally placed.

In the newly born and in the aged, an inclination to a circular opening was seen.

URBANTSCHITSCH ON A PECULIAR FORM OF EPITHELIAL DEPOSIT ON THE MEMBRANA TYMPANI AND ON THE EXTERNAL MEATUS.—In the same number of the *Archiv für Ohrenheilkunde*, the same author describes three cases in which he has seen on the tympanic membrane several white glancing, sharply circumscribed spots, as if the membrane were studded with small pearls. In one case two such spots were on the lower segment, and on the upper and posterior quadrant four such spots were grouped together. The condensation or rarefaction of the air in the meatus, though acting strongly

on the membrane, made no change on the deposits. In a second case he saw a similar accumulation forming, appearing first as a white point, which, only to be detected by careful examination at first, grew after several weeks to the size of a pinhead. Several more formed on the same membrane, and wandered gradually upwards from the spot at which they were first observed. Touching them with the sound showed that they were hard and firm; pressure could not detect any soft part. On removing one of them by a tenotome, however, this hardness was found to be confined to the covering of the tumour, while the inner part consisted of a yellow pulpy mass, easily removed from the hard periphery. The microscope showed that it was not a cholesteatomatous tumour, as no cholesterine could be discovered, and that it consisted of fragments of epithelium. Eight weeks after the removal there were no indications of a return. In another case the tumours were absorbed without any treatment. Two of the above-mentioned patients were suffering from otitis media, the third from catarrh of the tympanic cavity.

W. LAIDLAW PURVES.

PFLÜGER ON CHRONIC GLAUCOMA IN TWO BROTHERS AGED NINETEEN AND TWENTY YEARS. The *Klinische Monatsblätter* for April, 1875, contains a short account of two cases of glaucoma which occurred in two young men of the same family.

Just S., aged twenty, was brought to Dr. Pflüger in May, 1874, and it was said that his eyesight had been slowly but gradually diminishing, but without any pain, during the last two years; the symptoms had been ascribed to debility, but no good had resulted from treatment. The widely dilated pupil and the tortuous and engorged condition of the sub-conjunctival vessels pointed to glaucoma, and a closer examination left no doubt upon the subject. Central vision was lost, and the visual field of the right eye was contracted to a small and excentric space upwards and outwards. That of the left eye was very similar but rather larger in extent. The visual acuity, right = $\frac{1}{200}$ left = $\frac{200}{800}$.

The ophthalmoscope served to make the diagnosis more complete. The optic papilla was cupped in a most marked degree, and its margins were surrounded by a yellow-white ring, the outlines of a posterior staphyloma. The erect image of the scleral ring could be most clearly seen with a concave-glass—6, while the entrance of the blood-vessels and the fundus of the cupped papilla could only be clearly seen with a concave—3.

On inquiry, it appeared that the patient had a brother a year younger whose sight had deteriorated in a very similar way, and on examination his eyes were found in much the same condition although less advanced. An iridectomy was at once advised, and was submitted to by the younger of the two brothers, but the other brother and his father were too sceptical as to the nature of the disease to submit to treatment. As his vision did not improve after the operation, the younger brother consulted Professor Horner, who made the following note of the condition of his eyes.

With the right eye he could hardly see the shadow of the hand, with the left he could count fingers with difficulty; in neither eye was the tension very marked, but the arterial pulse could be readily seen. The difference in the refraction of various diameters of the eyes were very remarkable.

The eyes had remained in much the same condi-

tion since the operation; and the discrepancy between the measurements of the glaucomatous cup, as made by Dr. Pflüger with those made at a later period by Professor Horner, may be due to the fact that Dr. Pflüger did not relax his own accommodation by atropine before he made his examinations.

BOWATER J. VERNON.

REVIEWS.

Ling's Educational and Curative Exercises. By M. J. CHAPMAN, M.A. Cantab., M.D. Edin. Fourth Edition. Edited by Augustus Georgii. London: Renshaw, 1875.

It is more than sixty years since Ling first introduced the system of gymnastics with which his name is so specially connected, the Royal Gymnastic Central Institution at Stockholm having been founded on his principles in 1813. The somewhat uncouth nomenclature of his *Kinesiatic* or *Kinesitherapeutic* science was, to a certain extent, a bar to its immediate acceptance elsewhere, and the active advocacy of Dr. Chapman was only partially successful in securing for it a hearing in this country. In Sweden, however, the Government was induced to look favourably upon it, and in Germany numerous establishments have since risen all over the country in which Ling's principles are carried out.

The present pamphlet is a reprint of the late Dr. Chapman's, and is edited by Professor Georgii, one of the only two pupils Ling had that he thought capable of carrying out his idea in the way he contemplated. Ling was a poet and enthusiast, and as such was, probably, able to push his views into notice more effectually than if he had been a man of more ordinary mould; but in this, as in many other points, we are only returning to the wisdom of the ancients, who were fully alive to the necessity of gymnastic exercises for preserving the vigour, bodily and mental, of a community.

It is, however, unfortunate that unnecessarily hard names, not to mention other points, should have imparted to the method in question a certain air of quackery calculated to repel the members of the medical profession generally. It is unsatisfactory to see the successes of such quacks as professional rubbers noticed, without any mention of their numerous failures, and the great harm done in too many cases by their ignorance and audacity. What also are we to make of 'manual magnetism, or mesmerism, according to Ling, a dynamic agent, through an external mechanical vehicle'?

It is, however, quite certain, in spite of those objections, that gymnastics, or educational and curative exercises, as Ling calls them, are highly valuable, and that much may be done by their means in the hands of properly educated persons, and to Ling is due the main credit of their revival in a scientific spirit. He divides gymnastics into four sections, viz. :—

1. MEDICAL GYMNASTICS (*Kinesitherapeutics*), in which mechanical manipulation, scientifically used, is applied to supplant or supplement medical treatment.

2. EDUCATIONAL GYMNASTICS, by which the most perfect development of the frame as an instrument is aimed at.

3. MILITARY GYMNASTICS, with special regard to training for attack and defence.

4. *ÆSTHETIC GYMNASTICS* includes the true principles of elocution, with expression of emotions in action.

In the Royal Gymnastic Institution at Stockholm, training is given in all these branches, under a board of direction consisting of a physician, a military officer, and a certificated schoolmaster. Subordinate teachers require to go through a course of two years' duration, including lectures on anatomy, physiology, pathology, and hygiene, together with instruction in the theory and practice of gymnastics, educational, military, and medical.

Ling proposed that all children should be put under physical training when they were seven years old, supposing that there should be no decisive reason for commencing his exercises sooner; and certainly the ordinary experience of the benefit often obtained by the mere learning of dancing is a corroborative fact in favour of this view. As regards the curative results, a long list of cases is given of various diseases where more or less good result was obtained by Professor Georgii. They are certainly very remarkable, and include a great variety of cases, such as phthisis, paralysis, spinal complaints, cerebral congestion, neuralgia, rheumatism, skin-affections, and even in one case fistula in ano! In a table at the end the editor gives an abstract of the results in 399 cases, of which 163 were cured, ninety greatly improved, ninety-one improved, and fifty-five no results; surely an excellent return for any therapeutic method.

The effects of gymnastics have to a certain extent been seen in our own army, especially in the gymnasium at Aldershot, under the skilful management of Colonel Hammersley, where weedy lads have wonderfully improved, the chest expanding, the muscles increasing in size and power, cough and phthisical symptoms diminishing, and the general health becoming greatly ameliorated. There can be little doubt that a scientific system of gymnastics ought to form a part of the training of our army and navy, both officers and men, and above all that the medical officers should be properly instructed in it. Yet at Netley there is no gymnasium, nor any apparent likelihood of one being voted, although it was promised that one should be established there a dozen years ago.

Both Government and Parliament might take a lesson from so poor a country as Sweden, where an annual grant is made of 31,400 rix-dollars (6,500*l.*), besides a special grant of 167,000 some years ago for the necessary buildings for the Royal Gymnastic Central Institution at Stockholm.

The whole question is one of deep and vital interest, and it is to be hoped that sooner or later both Government and people will become sufficiently alive to it.

Annual Report of the Fever Hospital and House of Recovery, Cork Street, Dublin, for the year ending March 31, 1875.

This report is divided into two parts, the first giving an account of the expenditure during the year; the second being the medical report by Dr. Grimshaw, physician to the hospital.

The hospital is capable of containing 200 patients, 150 acute and 50 convalescents, but it is found that it is necessary always to have 105 beds constantly ready for use.

During the year ending March 31, 1875, 858 patients were admitted, being an excess of forty-one

over those received in the previous year. A very large proportion of these, however, were not suffering from any specific fever.

The following table will show the number and nature of the various diseases admitted into the Cork Street Fever Hospital during the past year.

TABLE NO. I.—*Showing the Number of Admissions of the Principal Diseases, and the Mortality of those Treated to a Termination, for the year ending March 31, 1875.*

	Typhus Fever	Enteric Fever	Relapsing Fever	Simple Fever	Intermittent Fever	Small-pox	Scarlatina	Measles	Pneumonia	Whooping-Cough	Diarrhoea	Erysipelas	Meningitis
1874 April . .	5	17	1	27	..	..	8	1	6	..	..	..	..
May . .	10	7	..	10	..	..	13	..	10	1	1	1	..
June . .	17	5	1	22	..	..	6	..	9	..	2	2	..
July . .	15	14	..	17	..	..	9	..	8	..	4	1	..
August . .	5	14	1	16	..	..	10	..	3	..	2	2	..
September .	6	5	..	26	..	..	14	2	3	..	..	1	1
October . .	13	4	..	32	1	..	11	1	2	..	..	..	..
November .	6	4	..	11	..	..	11	2	5	..	2	2	..
December .	12	3	..	15	1	..	8	2	2	..	1	1	..
1875 January	16	7	..	24	..	..	12	..	5	..	1	1	..
February .	1	3	..	13	..	..	11	..	5	..	1	1	..
March . .	6	..	..	16	..	..	3	..	9	..	..	..	..
Total, 1874-5 .	112	83	3	229	2	..	116	6	67	1	7	12	2
Total, 1873-4 .	113	77	4	173	7	1	55	11	18	1	18	7	3
Increase this year	..	6	..	56	..	..	61	..	49	..	..	5	..
Decrease this year	1	..	1	..	5	1	..	5	..	..	11	..	1
Died . . .	16	6	1	1	..	..	22	2	14	..	1	..	1
Mortality per cent.	14.3	7.2	33.4	..	5	..	18.9	33.4	20.9	..	14	..	50

Acute rheumatism, 31; chronic rheumatism, 4; bronchitis, 120; alcoholism, 10; phthisis, 6; catarrh, 6; dyspepsia, 23; pneumonia, 1; progressive muscular atrophy, 1; tonsillitis, 1; jaundice, 3; English cholera, 1; asthma, 1; puerperal mania, 1; paralysis, 2; hemiplegia, 1; influenza, 2; no disease, 4.

The report calls special attention to the fact of sixty-eight cases of pneumonia being admitted. Dr. Grimshaw says this disease prevailed in the spring and summer months, generally in the epidemic form, occurring in the same localities and under similar circumstances to enteric fever. Dr. Grimshaw thinks that he has distinctly traced its cause to a miasmatic source, and therefore names it 'pythogenic pneumonia.' Speaking of the disease he says it 'must now be fairly looked upon as a specific fever, the lung-affection bearing the same relation to the fever as the sore throat does to scarlatina, ulceration of the intestines to enteric fever, or inflammation of the membranes of the spinal cord to cerebro-spinal fever. This form of fever must, therefore, be considered a suitable one for reception into our hospital, and should not be refused admission or transferred to other hospitals in the same way as bronchitis, or other forms of chest-inflammation produced by exposure to cold.'

Several carefully prepared tables will be found in the report, comparing the monthly admissions with those of former years. ALEX. COLLIE, M.D.

On the Influence of Temperature during Child-birth, and on the Right Management of the Puerperal State. By BENJAMIN T. MOORE, M.D. Pp. 30. 1875.

This pamphlet consists of a series of letters recently published in the *British Medical Journal*.

The author cites what he considers a typical case of labour. 'A person who was occupied in baking cakes, whilst standing before a large bread oven, was suddenly taken with her first and only pain, and had barely time to kneel down in front of a chair before the child was born.' He questions 'whether precisely similar results might not as a rule be accomplished, were the mass of parturient women subject to equally favourable conditions.'

'In cases of retention of the placenta, whether arising from spasm or inertia, I have found it an excellent plan to get the patient to stand before a fire, and thus to warm and dry her body, back and front.' It would be interesting to know in how many cases he has tried this, and whether he really recommends it in all cases. He speaks of placenta previa, which 'could only be traced to anxiety of mind.'

Then follow long extracts from Dr. Leishman's *System of Midwifery*, Dr. Richardson, and Dr. Spender's essay on *Pain*, with an attempt on the part of the author to confute their statements. 'Not to the contraction of uterine muscle, but to the inordinate distension of the parts involved, and more especially to the resistance offered at the mouth of the womb and at the external orifice, may chiefly, if not entirely, be ascribed the ordinary pain of labour,' p. 28.

'This so-called physiological pain is a matter which by the simple regulation of temperature may be brought completely under control.' The extracts speak for themselves. Criticism is superfluous.

MISCELLANY.

A STATUE of Seutin, the well-known surgeon of the Saint-Pierre Hospital at Brussels, has been lately inaugurated. He is represented with a bistoury in his hand, as if about to perform an operation.

THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE last week held its annual meeting in Bristol, under the presidency of Sir John Hawkshaw. A number of papers were read in the Anatomical and Physiological Department of the Section of Biology, one of the most interesting being a report, by Dr. M'Kendrick of Edinburgh, and Professor Dewar of Cambridge, on the Physiological Action of Light. We intend to give a summary of this report in our next monthly number. The meeting in 1876 is to be held in Glasgow, and Sir Robert Christison has been nominated president-elect. Sir Robert is the President of the British Medical Association for the year 1875-76.

THE MEDICAL SCHOOLS.—The introductory lectures at the medical schools in Great Britain will be delivered this year as follows:—Charing Cross Hospital, Mr. Fairlie Clarke; St. George's Hospital, Dr. Barnes; Guy's Hospital, Dr. Stevenson; King's College, Dr. Curnow; London Hospital, Dr. Woodman; St. Mary's Hospital, Dr. Randall; Middlesex Hospital, Mr. Lowne; St. Thomas's Hospital, Dr. Payne; University College, Dr. Corfield; Westminster Hospital, Mr. Davy; Queen's College, Birmingham, Rev. W. H. Poulton (Warden); Leeds School of Medicine, Mr. Jessop; Owens College (Manchester Royal) School of Medicine, Mr. Lund; Liverpool Royal Infirmary School of Medicine, Dr. Dickinson; University of Durham College of Medicine, Newcastle-on-Tyne, Mr. H. E. Armstrong; Sheffield School of Medicine, Dr. J. Young; University of Edinburgh, Sir Alexander Grant, Principal; Edinburgh Extra Academic School of Medicine, Mr. Chiene; University of Glasgow, Dr. George Buchanan.

M. ALPHONSE DUBREUIL has been installed as Professor of Clinical Surgery in the Faculty of Medicine at Montpellier.

AN UNIVERSITY IN SIBERIA.—The *Union Médicale* announces that it is intended by the Russian Government to establish a university at Tornsk, in Siberia, principally with the object of educating medical men. It will comprise two faculties—medicine and law.

A NEW HOSPITAL IN PARIS.—A new hospital will be opened towards the end of the year in the north-east of Paris. It will be called the Ménilmontant Hospital, from the district in which it is situated. It will contain 150 beds, and is intended to meet the wants of a large and increasing poor population.

BOYLSTON MEDICAL PRIZE.—The Boylston Medical Committee, appointed by the President and Fellows of Harvard University, announce that the questions proposed for 1876 are the following:—1. Civil hospital construction (not of lunatic asylums); location, materials, arrangement, warming, ventilation, drainage, lighting; with designs. The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of three hundred dollars. 2. Do women require mental and bodily rest during menstruation, and to what extent? The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of two hundred dollars. Dissertations on the above subjects must be transmitted, post paid, to J. B. S. Jackson, M.D., Boston, on or before the first Wednesday in April, 1876. The following are the questions proposed for 1877. 1. Are epidemics, and so-called contagious diseases, necessarily dependent upon material agencies, acting through the stomach, or otherwise? 2. Athletic sports, training, violent exercise, etc., as now practised by young men; their temporary or permanent influence on the health. The author of a dissertation considered worthy of a prize, on either of the subjects proposed for 1877, will be entitled to a premium of two hundred and fifty dollars. Dissertations on these subjects must be transmitted as above, on or before the first Wednesday in April, 1877.

A CASE OF ABORTION.—In an article in the *Canada Lancet* for June 1, Dr. Andrews says: About twenty-five years ago a gentleman and lady called upon me to satisfy themselves whether or not she was pregnant. After due investigation, I gave a decision that she was. The lady was deeply moved, but quiet, though tears streamed down her cheeks; but I know of no word but agony that will express the emotion her husband laboured under. He called himself her murderer, entreated her pardon, and seemed beside himself. She strove to soothe and control him, and finally brought matters to the climax, by conjuring him, 'After I am gone, don't allow any woman (she was too kind to say stepmother) to ill-use my darlings—our darlings; promise, for my sake, Charles.' The scene was harrowing, and I gave way under it. I learned that she had already borne three children, then living, under circumstances of extreme peril, and that her medical attendant had assured them both, that if subjected to the same ordeal again, it was impossible she should survive. I saw and verified a letter from her former attendant, in which he urged that abortion was the sole means of averting otherwise inevitable death. The writer was a man of considerable wealth, of a social standing far above any that I have ever attained, and of great professional repute; but all these are not absolute proof of real ability. Great men are not always wise. I was not satisfied of the absolute necessity of the act, and yet I assumed the responsibility—undertook and effected abortion. '*Mea culpa!*' I was wrong, very wrong; responsibility cannot be delegated. Upon a subsequent occasion, when I came to know the lady better, I cheered her spirits, raised her hopes, and safely delivered her at term of a living child, with much less difficulty, danger or suffering than I have encountered in scores of cases.

HIS ROYAL HIGHNESS THE LATE PRINCE KARL OF BAVARIA has left a bequest of 20,000 gulden (about 2,000*l.*) to the Pension Society for the benefit of widows and orphans of Bavarian medical men.

NUMERICAL RATES OF DISEASES.—At the recent meeting of the British Medical Association in Edinburgh, Dr. Walter Dickson, Medical Inspector of Her Majesty's Customs, read, in the section of Public Medicine, a paper on the numerical rates of disease in the adult male community, deduced from the sanitary statistics of the *employés* at the Custom House from the years 1857 to 1874. He said that in these statistics would, he believed, be found a fairly correct estimate of the health-condition of the middle-class, middle-aged male population. The Custom House officers are, for the most part, resident in London, and occupied from eight to twelve hours in daily labour, attended, in most instances, with much fatigue and exposure to the weather. They form a permanent force, leaving it seldom except on promotion, death, or invaliding; and resemble in all essentials the majority of the well doing industrious section of the community. These officers are all under medical surveillance during their service of thirty or forty years, and the records of their sickness and results have been kept with as much fulness and accuracy as the nature of the subject will allow. Their age ranges from twenty-one to sixty-five; the mean age at present is thirty-eight. Although embracing a limited number, the records extend over so long a period that they may be considered as typical of a large force. The numerical ratios of twenty-eight years (which is equivalent to that for one year of 32,000 men), are mean daily number incapacitated, 27 per 1,000; admissions to sick-list in year, 70 per 1,000; mean duration of each case, 15.5 days; time lost per man annually, eleven days, exclusive of Sunday, 9.5 days; mortality from disease, 11.5 per 1,000, and from accident, 1.3 per 1,000; in all, the deaths are 12.8 per 1,000; superannuations or invalidings, 8 per 1,000; death and invaliding combined, 21 per 1,000; recoveries so as to resume duty, 979 per 1,000. Of the various classes of disease, the ratio of those of the respiratory organs amounts to 27 per cent. of all the cases, 20 per cent. of the time lost, 11 per cent. of deaths, and 18 per cent. of the superannuations; phthisis yields 1.4 per cent. of cases, 8 per cent. of the time lost, 31 per cent. of deaths, and 9 per cent. of superannuation; rheumatism and gout show 14 per cent. of sickness, only 0.4 per cent. of death, but 33 per cent. of superannuation; diseases of the heart exhibit 1 per cent. of cases, 2 per cent. of time lost, 13 per cent. of the deaths, and 1.5 per cent. of superannuations; diseases of the digestive organs give 17 per cent. of cases, 13 per cent. of time lost, 9 per cent. of deaths, and 7½ per cent. of superannuations; diseases of the nervous system amount to 7.5 per cent. of the cases, 9 per cent. of time lost, 9 per cent. of deaths, and 20 per cent. of superannuations, 10 per cent. being for insanity; skin and other surgical diseases give 11.5 per cent. of cases, 10 per cent. of time lost, but hardly any death or superannuation. Zymotic diseases occur in the small proportion of 6 per cent. of the whole amount of sickness, and 7 per cent. of the whole mortality; and no instance has occurred in many years of any officer having contracted such illness on board ship, a remarkable proof of the extreme healthiness of the Port of London in regard to its vast foreign traffic, and of the satisfactory health of the Customs' force. Phthisis and heart-disease are the most fatal diseases, causing one half of the whole mortality. The former claims 4 per 1,000 men as its annual victims, of the mean age of forty-one years. Heart-disease destroys 1.5 per 1,000, at the average age of forty-eight years. Accidental injuries constitute 10 per cent. of the cases, 11 per cent. of the time lost, and 9.5 per cent. of the mortality. Drowning causes 4.7 per cent.; fractures, etc., 3 per cent.; and suicide, 1.8 per cent. of the whole number of deaths. These deaths from violence amount in all to the rate of 1 per 1,000 of the force.

The London Medical Record.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

EDUCATIONAL INTELLIGENCE.

We give this month the regulations of some of the principal Continental Universities relating to Degrees of Medicine, together with lists of the professors and the subjects which they teach.

FACULTY OF MEDICINE OF PARIS.

The winter courses of the Faculty will be given in the following, commencing on November 3.

Medical Physics.—M. Gavarret : General Physics—Heat, Electricity, Light, Wednesdays, and Fridays, at noon. Biological Physics : Physical Phenomena of Hearing and of Phonation, Mondays, 5 P.M.

Medical Pathology.—M. Axenfeld, deputy, M. Duguet, *agrégé* : Diseases of the Genital Organs of Men and Women, Mondays, Wednesdays, and Fridays, 3 P.M.

Anatomy.—M. Sappey : the Principal Systems and Principal Organs of the Body, Mondays, Wednesdays, and Fridays, 4 P.M.

Pathology and General Therapeutics.—M. Chaufard : on Acute and Chronic Disease, General Study of the Symptomatology and Etiology of these two Orders of Disease, Mondays, Wednesdays, and Fridays, 5 P.M.

Chemistry.—M. Wurtz : Biological Chemistry, Chemical Study of the Blood, Chemical Phenomena of Respiration and Nutrition, Tuesdays, 4 P.M. ; Medical Chemistry, Thursdays and Saturdays, noon.

Surgical Pathology.—M. Dolbeau, General Surgical Pathology, Tuesdays, Thursdays, and Saturdays, 3 P.M.

Operations and Apparatus.—M. Léon le Fort : Therapeutics of the Affections of the Circulatory Apparatus, Special Operations (Diseases of the Eyes, Mouth, Thorax, Hernia, etc.), Tuesdays, Thursdays, and Saturdays, 4 P.M.

Histology.—M. Robin : Histology properly so-called ; Special Study of the Organic Tissues and Systems, Tuesdays, Thursdays, and Saturdays, 5 P.M.

History of Medicine and Surgery.—M. Lorain : Historical Studies on some Epidemic and Contagious Diseases, Variola, Syphilis, etc., Tuesdays, Thursdays, and Saturdays, 5 P.M.

Medical Clinic.—M. G. Sée, at the Charité. M. Béhier, at the Hôtel-Dieu. M. Lasègue, at La Pitié. Every day, from 8 to 10 A.M.

Surgical Clinic.—M. Richet, at the Hôtel-Dieu. M. Verneuil, at La Pitié. M. Broca, at the Hôpital des Cliniques of the Faculty. Every day, from 8 to 10 A.M.

Obstetric Clinic.—M. Depaul, at the Hôpital des Cliniques. Every day, from 8 to 10 A.M.

Diseases of Children.—M. Blachez, *agrégé*, at the

Children's Hospital, Mondays, Thursdays, and Saturdays, 8.30 A.M.

The work of dissection will commence at the École Pratique, on Monday, October 18. M. Sée, Superintendent of Anatomy, will open his course on November 3.

Division of Studies.—First year : Medical Chemistry, Medical Physics. Second year : Anatomy, Histology, Dissections. Third year : Anatomy, Histology, Dissections, Operations and Apparatus, Internal and External Pathology, Medical and Surgical Clinics. Fourth year : Internal and External Pathology, Practical Exercise in Operative Surgery, Medical and Surgical Clinics.

Students are informed : 1. That entries for practical study, and for examinations may be made from October 14, on Fridays and Saturdays, from 1 to 4 P.M. ; 2. That the register for inscriptions of the first trimester of the scholastic year 1875-1876 will be open from Wednesday, November 3 to Thursday November 25, on Mondays, Tuesdays, Wednesdays and Thursdays, from 1 to 4 P.M. Pupils who are about to commence their course of study will not be admitted to take their first inscription unless they present and leave at the Secretary's office on November 15 at the latest : (1) Their certificate of birth ; (2) A certificate of good conduct and morality ; (3) The diploma of Bachelor of Arts ; (4) If they are minors, the consent of their parents or guardians. Those who do not reside in Paris must be introduced by a person domiciled at Paris, who will be required to enter his name and address in a register opened for the purpose. Before taking their third inscription, students must show the diploma of Bachelor of Sciences (limited curriculum).

Aspirants for the title of *Officier de Santé* are dispensed from producing the diploma of Bachelor of Sciences or Arts ; but they must produce the 'Certificate of Grammar' obtained according to the provision of Article 6 of the *Decret* of December 23, 1854.

Foreign students desiring only to follow the Courses of the Faculty without seeking a diploma of the University are, with great liberality, admitted free to the Courses of the Faculty.

UNIVERSITY OF BERLIN.

The following are the conditions under which foreigners may attain the degree of Doctor of Medicine in this University.

The candidate must produce attested evidence that he has received a scientific education, and that he has studied medicine during four years. He is then examined in anatomy, physiology, chemistry, general and special pathology and therapeutics, surgery, *materia medica*, pathological anatomy, and midwifery. The examination is conducted in German or Latin. The fees for examination and graduation amount to 440 *reichsmark* (about 22*l.*) Before graduation the candidate must lay before the Faculty of Medicine a dissertation on a medical subject, which is printed at his own expense, and which, together with a series of medical theses, he has to defend against opponents chosen by himself. The dissertations are carried on in the German or the Latin language.

The courses to be delivered in the University during the winter session 1875-76 are.—Ordinary professors : Dr. Bardeleben, Wounds and Clinical Surgery ; Dr. du Bois-Reymond, Physical Anthropology and Physiology ; Dr. Frerichs, Medicine ; Dr. Hirsch, Medicine ;

Dr. Ivengken, Herniæ and General Surgery; Dr. von Langenbeck, Surgery; Dr. O. Liebreich, Chemistry of the Urine, and Materia Medica; Dr. Martin, Obstetrics and Gynæcology; Dr. Reichert, Histology and Anatomy; Dr. Schweigger, Diseases of the Eye; Dr. Traube, Clinical Medicine; Dr. Virchow, General Pathology and Therapeutics; Dr. Westphal, Diseases of the Nervous System. Extraordinary Professors: Dr. Albrecht, Dentistry; Dr. Fritsch, Human Parasites, and the Use of the Microscope; Dr. Gurlt, Fractures and Dislocations, and Operative Surgery; Dr. Hartmann, Anatomy of the Organs of Senses, Bones, and Ligaments; Dr. Hensch, Diseases of Children; Dr. Jacobson, Diseases of the Heart and Lungs; Dr. Lewin, Diseases of the Skin, and Syphilis; Dr. Liman, Forensic Medicine; Dr. Lucae, Diseases of the Ear; Dr. Meyer, the Art of Examining Patients, etc.; Dr. Munk, Physiology; Dr. Salkowski, Physiological Chemistry; Dr. Skrzeczka, Forensic Medicine; Dr. Waldenburg, Means of Physical Examination. There are also a number of *privatdocenten*, some of the best known of whom are Dr. Cohnstein (Gynæcology), Dr. Fasbender (Gynæcology); Dr. Senator (Diseases of Children, and General Semeiology and Diagnosis); Dr. Weber-Liel (Diseases of the Ear); Dr. Zuelzer (Medicine), etc.

UNIVERSITY OF ERLANGEN.

The following are the regulations to be observed by candidates for the degree of Doctor of Medicine in this University.

1. Candidates for the degree of Doctor must announce their intention to the Dean of the Faculty of Medicine, and present the following documents: *a.* Evidence of having gone through the curriculum in a German gymnasium, or proof of equivalent general education; *b.* Proof of having studied medicine in one of the German Universities or in a corresponding foreign medical school during at least three years; *c.* A Thesis, composed by the candidate, on some subject in medicine or natural science, with a written declaration, on word of honour, that the work is absolutely the candidate's own.

2. If the dissertation be judged by the Faculty to be of sufficient merit, the candidate is admitted to an oral examination, which is conducted in the German language. It may take place in two forms: *a.* As a colloquy, in the case of those who have passed an examination in medicine before a German examining board; *b.* As an extended examination on all departments of medical science, in the case of those who have not passed an examination before a German board.

3. After the conclusion of the oral examination, the examiners decide on the result. If the decision be favourable, the degree of Doctor is at once conferred, the fact being communicated to the candidate by the dean, and his diploma issued to him.

4. The candidate, if his dissertation be approved, must have it printed at his own expense. At the back of the title-page it must be stated that the dissertation is printed with the consent of the Faculty; and the name of the reporter (*referent*) must be given.

5. The candidate must pay a fee of 300 marks (100 thalers or 175 gulden, equal to about 15*l.* 10*s.*) for the granting of the Doctor's degree, and must also deliver 100 copies of his dissertations to the Faculty.

6. If the candidate fail to pass the examination, half of the fee is returned to him.

The Medical Faculty of this University consists of the following professors and teachers: Dr. Gerlach—Anatomy; Dr. Zenker—Pathology; Dr. Heineke—Surgery; Dr. Schröder—Midwifery; Dr. Rosenthal—Physiology; Dr. Leube—Medicine; Dr. Michel—Ophthalmology; Dr. Trott—Materia Medica and Hygiene; Dr. Wintrich—Diseases of Children; Dr. Hagen—Psychiatry; Dr. Filehne (*privatdocent*)—Materia Medica and Prescribing; Dr. Penzoldt (*privatdocent*)—Venereal Diseases and Diseases of the Larynx.

UNIVERSITY OF HEIDELBERG.

The following are the regulations to be observed for graduations in medicine in this University.

1. In applying for examinations for the degree of Doctor, no evidence of a previous course of study is required.

2. The same demands are made of all candidates; the only difference is that the oral examination is shortened if evidence be produced that the candidate has undergone, in the German empire, the *Staats-examen* for license to practise.

3. The subjects of examination are (1) Anatomy; (2) Physiology; (3) Pathological Anatomy; (4) Materia Medica (Pharmacognosics, Pharmacodynamics, and Toxicology); (5) Medicine; (6) Surgery; (7) Midwifery; (8) Ophthalmic Surgery.

4. A candidate may select one of these as the principal subject of his examination. All the other subjects then become secondary.

5. The examination is oral and written. The oral examination can only be conducted in the German language.

6. The written part of the examination consists of a medical dissertation in German or Latin, which must be given in before the oral examination. The dean of the Faculty of Medicine delivers the dissertation (or a scientific publication by the candidate, which may be substituted for it) to a reporter for his opinion. The reporter is authorised to hold a conversation with the candidate on the subject treated of in the work. In voting on the dissertation, the question is put whether it shall be allowed to be printed. If it be printed, the names of the dean for the time being, and of the reporter, must appear on the title page.

7. The oral examination comprises the principal subject chosen by the candidate, and a certain number of the secondary subjects. The number and selection of the secondary subjects varies, according as the state-examination has or has not been passed. If proof be given that a state-examination has been passed in the German empire, the candidate is examined in the principal subject, and in three of the secondary subjects, selected by himself. If there be no proof of a state-examination, he is examined in five secondary subjects. Of these, three are fixed—Anatomy, Physiology, and Pathological Anatomy; the other two may be chosen by the candidate. But if one of the three fixed subjects be chosen by the candidate as the principal subject, its place as a secondary subject is taken by another, selected by the candidate.

8. The duration of the oral examination depends on the number of subjects. The candidate is examined on the principal subject for thirty minutes, on each secondary one from fifteen to twenty minutes, according to the judgment of the examiners.

9. On the result of the entire examination, three notes are granted. The first (*summâ cum laudè*)

can only be granted when the dissertation has received the *imprimatur* of the Faculty. Even when the *imprimatur* has been received, the result of the oral examination may be such as to entitle the candidate to the second vote (*insigni cum laude*) or to the third (*cum laude*).

10. No oath is administered. When the diploma is delivered to the candidate by the dean, he has to give his hand in promise that he will bear his academical dignity with honour.

11. The cost of the examination, exclusive of that of the diploma, amounts in all to 444 marks (about 22*l.* 5*s.*), which must be paid before the commencement of the examination. Of this sum, if the oral examination be not passed, 179 marks (about 9*l.*) are returned.

12. The diploma contains a record of the principal subject, the vote on the whole examination, and the judgment on the dissertation.

The members of the Faculty of Medicine are; Dr. Lange—Midwifery; Dr. Delffs—Experimental Chemistry; Dr. Friedreich—Medicine; Dr. Gegenbaur—Anatomy; Dr. Simon—Surgery; Dr. Kühne—Experimental Physiology; Dr. Becker (Dean)—Ophthalmic Medicine; Dr. von Dusch—Diseases of Children; Dr. J. Arnold—Pathological Anatomy; Dr. Nuhn—Anatomy; Dr. Oppenheimer—Materia Medica; Dr. Moos—Diseases of the Ears; Dr. Knauff—Public Health; Dr. Erb—Electro-therapeutics and Diseases of the Nervous System; *Privat-docents*—Dr. Fehr, Dr. Lossen, Dr. Weil, Dr. Thoma, and Dr. Fischer.

The winter session commences on October 15.

UNIVERSITY OF STRASSBURG.

The following are extracts from the regulations of this University, relating to degrees in Medicine.

3. Any one desirous of obtaining the degree of Doctor of Medicine in this University can only be admitted to graduation if he fulfil the following conditions.

a. If belonging to the German empire, he must have passed through an academical four years' course as a student of medicine or of natural science. By an unanimous decision of the Faculty, one or two sessions may be remitted. Foreigners desirous of graduation are not required to pass through the four years' course in Germany, if proof be produced that they have received instruction equivalent to that given in the German medical faculties.

b. He must present a scientific dissertation, composed by himself.

c. He must undergo an examination by the Faculty.

d. He must pay the prescribed fee of 100 thalers (about 15*l.* 15*s.*)

4. In announcing to the dean his desire to graduate, the candidate must first produce the evidence referred to in *3a*, and forward a scientific memoir on some department of medicine, with a written assurance that it is absolutely his own work.

5. If the dissertation receive the approval of the Faculty, the candidate is admitted to examination.

6. This examination is conducted by the ordinary professors, and consists, as a rule, of an oral theoretical examination in all the important departments of medicine. If the candidate do not pass the oral examination, he must, in order to obtain the degree of doctor, again undergo the examination after a period of time to be determined by the Faculty; but he is not required to present a second thesis.

7. In the case of candidates who have already

passed a state examination in medicine, the oral examination may, by the unanimous consent of the Faculty, be replaced by a colloquy before three members of the Faculty.

8. Graduation does not take place in the absence of the candidate.

9. The fee of 100 thalers is to be paid to the Dean when the candidate announces his desire to graduate. If the dissertation be rejected, the whole fee is returned. If it be approved, but the candidate fail to pass the oral examination, the fee is not returned, but when the candidate is readmitted to examination, he has to pay only half the fee.

11. After the oral examination has been passed and the dissertation printed and published, a printed diploma is issued to the candidate. The names are announced on the black board.

12. The printing of the dissertations and also of the diploma is done at the candidate's expense.

14. There is no public ceremony, nor is any oath administered.

The Medical Faculty consists of: Dr. Waldeyer—Anatomy; Dr. Jössel—Anatomy; Dr. Goltz—Physiology; Dr. Hoppe-Seyler—Chemistry; Dr. Schmiedeberg—Materia Medica; Dr. von Recklinghausen—Pathology; Dr. Strohl—Forensic Medicine; Dr. Leyden (and Dr. Kohts, *privatdocent*)—Medicine; Dr. Lücke—Surgery; Dr. Gusserow—Midwifery; Dr. Aubenas—Accouchements; Dr. Wiegner, Skin Diseases, Syphilis, etc.; Dr. Jolly—Psychiatry; Dr. Laqueur—Ophthalmic Medicine; Dr. Kuhn (*privatdocent*) Diseases of the Ear; Dr. Zweifel, Operative Midwifery and Diseases of New-born Infants; Dr. Friedländer (*privatdocent*), Diseases of the Respiratory Organs, etc.

The lectures for the winter session 1875-76 begin on Monday, October 18, and the session ends on March 18, 1876. Matriculation takes place on the first four Wednesdays of the session, from twelve to one o'clock. After these four weeks, the rector can allow matriculation only on special grounds. Any one desirous of matriculating as a student and attending the lectures and other instruction given in the University, must on his arrival in Strassburg, communicate with the secretary of the University, for the purpose of being entered. Other persons desirous of attending any of the courses of lectures, must obtain permission from the respective teachers, and also communicate with the secretary of the University.

UNIVERSITY OF ZÜRICH.

The following are the regulations for the degree of Doctor of Medicine.

1. In order to obtain the degree of Doctor of Medicine, the candidate must send to the dean a written memorial, accompanied by (*a*) evidence of attendance on lectures on Physics, Chemistry, Botany, Zoology, and Medical Subjects; (*b*) a dissertation on some subject in medical science, which, after approval, the candidate must have printed at his own expense.

2. The dissertation is delivered by the dean for examination to the teacher of the subject of which it treats, or to the member of the Faculty at whose suggestion it has been composed. A recommendatory opinion of the first examiner decides its acceptance; in this case, his name appears on the title when it is printed. If the first opinion be doubtful or unfavourable, the thesis must be circulated among

all the members of the Faculty, and is only accepted if two-thirds of them give their written votes in its favour.

3. When the dissertation is approved, the candidate is admitted to examination for the degree. The first part is written, and the candidate has to answer, in a closed room, two questions drawn by lot, one on Anatomy and Physiology, the other on Pathology and Therapeutics, Surgery, or Midwifery. The answers are circulated among the members of the Faculty, who, after examining them, express in writing their determination (by a simple majority) whether the candidate shall be admitted to the second (oral) examination. The oral examination comprises the above-named subjects, and also General Anatomy, Pathological Anatomy, *Materia Medica*, and Ophthalmic Medicine. The vote of two-thirds of the members of the Faculty present is necessary for the passing of a candidate.

4. After the examination has been passed and two hundred printed copies of the dissertation have been delivered, the graduation takes place under the presidency of one of the ordinary professors of the Faculty. The ceremony consists of the following acts: *a.* Reading the candidate's *curriculum vitæ*; *b.* A contribution by the candidate on some subject in medicine or natural science; *c.* A disputation on theses on subjects in medicine or natural science, which theses the candidate has printed after their approval by the dean, and which are distributed among those present; *d.* Creation of the candidate as Doctor of Medicine, Surgery, and Midwifery.

5. To the graduate is delivered, in duplicate, an official diploma.

6. The fee consists of 350 francs (14*l.*) and 15 francs to the bedell; it is paid before the oral examination (if this be remitted, before graduation). There is no additional fee if it be necessary to repeat the examination. The fee is not returned if the candidate be definitely rejected. The sum of 100 francs is remitted to candidates who already possess a recognised diploma; and in such cases the Faculty may, by a majority of two-thirds, agree to omit the oral examination. The fees are distributed in the following manner: 300 francs (or 200 if part be remitted) to the members of the Faculty in office at the time of the examination (an ordinary professor receiving three times as much as an extraordinary), 15 francs to the Dean for sealing the diploma; 15 francs to the Faculty chest; and 20 francs to the cantonal library.

7. The Faculty has the power of granting the diploma of doctor *honoris causâ*, for distinguished service to medicine.

The members of the Medical Faculty are; Dr. H. Frey—Histology and Zoology; Dr. H. Meyer—Anatomy; Dr. E. Rose—Surgery; Dr. L. Hermann (Dean)—Physiology; Dr. J. Eberth—Pathology; Dr. F. Frankenhäuser—Midwifery; Dr. G. Huguenin—Medicine; Dr. A. Cloetta—*Materia Medica* and Forensic Medicine; Dr. F. Horner—Ophthalmic Surgery; Dr. E. Hitzig—Psychiatry and Diseases of the Nervous System; Dr. O. Wyss—Diseases of Children; Dr. H. Spöndly—Operative Midwifery; Dr. J. Billeter (*privatdocent*)—Dental Surgery; Dr. F. Goll (*privatdocent*)—Hygiene and the Art of Prescribing; Dr. R. Meyer (*privatdocent*); Dr. G. Brunner (*privatdocent*); Dr. J. Seitz (*privatdocent*).

The session begins on October 18, and ends March 18, 1876.

UNIVERSITY OF VIENNA.

Candidates for the degree of Doctor of Medicine must undergo three examinations. Before being admitted, the candidate must produce his certificate of birth or baptism, and evidence (*a.*) of having received a sufficient preliminary education in one of the institutions of the countries comprised in the empire, or, if he do not belong to any of these, evidence of having matriculated as an ordinary student in a faculty of medicine; (*b.*) of having attended lectures in a medical school during at least four sessions, and of having dissected during two sessions; (*c.*) of having passed, at one of the universities of the empire, three examinations, in botany, zoology, and mineralogy. Before being admitted to the second examination, he must produce evidence of having been engaged five years in professional study, and of having studied clinical medicine and clinical surgery, each during four sessions, and clinical ophthalmology and clinical midwifery, each during at least one session; and of having passed the first examination.

The first examination embraces physics, chemistry, anatomy, and physiology. There is a practical examination on anatomy and physiology, and a theoretical examination on all four subjects.

The second examination includes general pathology and therapeutics, pathological anatomy (histology) pharmacology (pharmacodynamics, toxicology, and prescribing), and the pathology and therapeutics of internal diseases. The candidate is examined practically in pathological anatomy (in preparation and on the dead body), and in medicine (at the bedside); and theoretically in all the subjects.

The third examination embraces surgery, ophthalmic surgery, midwifery and diseases of women, and forensic medicine. The examinations in surgery, ophthalmic surgery, and midwifery are practical; and there are theoretical examinations in all the subjects.

All the examinations are public. The fee for the first examination is 55 florins, for the second 60 florins, for the third 65 florins.

In the University of Vienna, instruction is given as follows by the professors: Human Anatomy, Drs. Voigt and Langer; Histology, Dr. Wedl; Pathological Anatomy, Dr. Heschl; Anatomy of the Nervous System, Dr. Meynert; Surgical Anatomy, Dr. von Patruban; Special Pathological Anatomy, Dr. Klob; Physiology, Dr. von Brücke; General Pathology, Dr. Stricker; Electro-Therapeutics, Dr. Benedikt; Hydro-Therapeutics, Dr. Winternitz; *Materia Medica* and Therapeutics, Dr. Vogt and Dr. von Schrott; Medicine, Drs. Duchek, Von Bamberger, and Löbel; Physical Diagnosis, Drs. Stern and Schwanda; Laryngoscopy, etc., Dr. Stöck; Surgery, Baron von Dumreicher, Drs. Billroth, Cessner, Dittel, Weinlechner, Böhm, Salzer, and Mosetig von Moorhof; Diseases of the Ear, Drs. Gruber and Politzer; Ophthalmic Surgery, Drs. von Arlt, Stellwag von Carion, Jäger; Obstetrics, Dr. Braun-Fernwald, Dr. Späth, and Dr. G. Braun; Diseases of Women, Dr. Böhm; Diseases of Children, Dr. Widerhofer and Dr. Weinlechner; Diseases of the Skin, Drs. Hebra and Kaposi; Syphilis, Dr. Sigmund von Ilanor; Diseases of the Skin and Syphilis, Drs. Neumann and Auspitz; Psychology, Drs. Meynert, Schlager, and Leidesdorf; Hygiene, Dr. Nowak; Physiological and Pathological Chemistry, Dr. Ludwig. There are also numerous teachers in the several departments.

LEADERS.

THE PHYSIOLOGICAL ACTION OF LIGHT.

BY JAMES DEWAR, M.A., F.R.S.E., JACKSONIAN PROFESSOR OF CHEMISTRY IN THE UNIVERSITY OF CAMBRIDGE, AND JOHN G. MCKENDRICK, F.R.S.E., F.R.C.P.E., LECTURER ON THE INSTITUTES OF MEDICINE, EDINBURGH.

The proceedings in the department of Anatomy and Physiology at the Meeting of the British Association for the Advancement of Science, at Bristol, on August 26, commenced by Dr. McKendrick presenting the report of the committee appointed at the meeting at Bradford in 1873 to investigate 'The Physiological Action of Light.' The members of the committee were Professor Balfour, F.R.S. (Edinburgh), Professor Dewar (Cambridge), and Dr. McKendrick, the latter being the reporter to the committee.

At the late meeting of the British Medical Association in Edinburgh, the chief facts mentioned in the following paper were demonstrated to the members.

Introductory.—Dr. McKendrick, in presenting the report, spoke as follows.

Before I enter into details regarding this report, I may make one or two observations of a preliminary character, so as, first, to show what led to the investigation, and, second, to indicate the method of research. About three years ago, Professor Dewar and I began an investigation into the physiological action of light. Some of the preliminary results were stated to this section of the British Association at the meeting at Bradford in 1873; and the Association appointed a committee and gave us a grant of money to carry on the investigation. We have been working at intervals upon this subject during the past two years, and I have now the honour of laying before you the results arrived at. The considerations which led us to undertake this investigation were partly theoretical, and partly suggested by a remarkable experiment made many years ago by Sir William Grove, now Lord Justice Grove. The

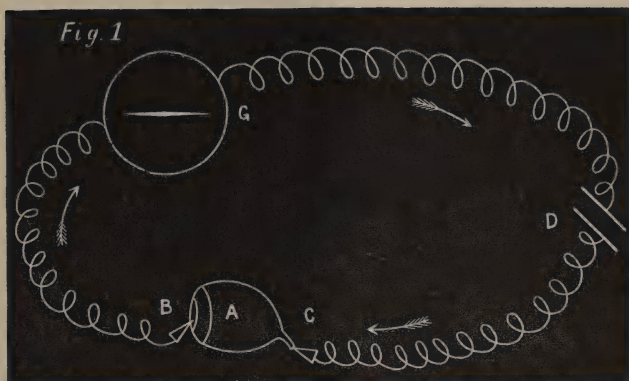


Diagram showing arrangement of apparatus and direction of current in the experiment on frog's eye. A. The eye, having one electrode, B, in contact with the cornea and another, C, touching the transverse section of the optic nerve. D. Key. G. Galvanometer. The arrows indicate the direction of the current.

theoretical considerations were, first of all, that in accordance with the principles of the law of the conservation of energy, one would expect that light would produce a specific physical effect when it acts upon the retina. Light being a mode of energy, when it impinges on the retina, must become transferred into some other kind of energy, which might be expressed and measured in some form or other. It might produce, for example, a chemical change in the structure; it might be transformed into heat; it might cause a disturbance in the electrical condition of the apparatus; or, possibly it might, as supposed by Sir Isaac Newton, be resolved into some kind of mechanical action. Various theories as to the action of light on the retina have been advanced, but these have hitherto been unsupported by experimental facts. The object of our investigation was to find out what the specific action of light was. These were the theoretical considerations. We then directed our attention to the remarkable experiment of Lord Justice Grove, made in 1838 or 1840, when he was working out the illustrations of the principle of the conservation of energy with which his name is so honourably associated. His experiment may be best described in his own words.

'A prepared daguerreotype plate is enclosed in a box filled with water, having a glass front, with a shutter over it. Between this glass and the plate is a gridiron of silver wire; the plate is connected with one extremity of a galvanometer coil, and the gridiron of wire with one extremity of a Breguet's helix—an elegant instrument, formed by a coil of two metals, the unequal expansion of which indicates slight changes in temperature; the other extremities of the galvanometer and helix are connected by a wire, and the needles brought to zero. As soon as a beam of either daylight or the oxy-hydrogen light is, by raising the shutter, permitted to impinge on the plate, the needles are deflected. Thus, light being the indicating force, we get chemical action on the plate, electricity circulating through the wires, magnetism in the coil, heat in the helix, and motion in the needles.'

A little consideration showed that in the case of the living eye, light might possibly have an action of this kind. We obtained a galvanometer, and proceeded to investigate the subject. I need not go

* Grove, 'The Correlation of the Physical Forces,' 5th ed. p. 153.

into particulars regarding the earlier experiments, which are recorded in the *Transactions of the Royal Society of Edinburgh* for 1873, but I will shortly give an idea of the general mode of carrying on the investigation, so that you may be able to follow some of the points to be presently alluded to.

Mode of Research.—We use an apparatus in these experiments, which has been long employed by physiologists for the detection of electrical currents in living animal or vegetable structures. This apparatus consists of two little troughs, made of zinc, mounted on vulcanite plates, and carefully amalgamated. Into these troughs we pour a saturated solution of pure sulphate of zinc. Into each is plunged a small pad or cushion of filter-paper, and upon each pad is placed a little bit of moist clay, to protect animal structures from the irritant action of the solution of sulphate of zinc. These two troughs are called the electrodes, and may be regarded simply as an arrangement for collecting and conducting off electrical currents from the structures under examination. Wires are conducted from the electrodes to the galvanometer (an instrument for detecting the presence of electrical currents and of measuring their strength), and a key is interposed between the electrodes and the galvanometer, for the purpose of cutting off any electrical current at pleasure. The apparatus is now ready for the experimental experiment is as follows. Remove an eye from the head of a decapitated frog as rapidly as possible, carefully clean it from all particles of muscular and areolar tissues, and place it upon the electrodes, so that one clay point is in contact with the cornea and the other with the transverse section of the optic nerve.

The moment we open the key, the needle of the galvanometer swings round, indicating the presence of an electric current. The needle in a short time will come to rest, and the amount of deflection will indicate the natural electric current passing from the cornea to the transverse section of the nerve. It can be easily shown that the surface of the cornea is positive to the transverse section of the nerve, in most instances. The detection of an electrical current from an eye, the tissues of which still retain life, of course is what anyone would expect who is acquainted with electro-physiology; because we know that nerve and muscle, and almost every variety of living animal tissue, manifests the presence of an electrical current when examined by this method. But the question remains, is this electrical current in any way affected by the action of light? To answer this question, suppose we keep the eye in the dark, the natural electrical current will keep the needle of the galvanometer in a certain position. If we now allow light to pass into the eye—light from any source—there is a movement of the galvanometer needle indicating a change in the electrical condition of the eye produced by the action of light. This experiment shows that light causes a change in the electrical state of the living eye.

That is the fundamental experiment which led to the further prosecution of this investigation. To make clear what follows, I must ask you to imagine the kind of galvanometer employed. It is the one known as 'Sir William Thomson's galvanometer,' an instrument of very delicate construction. A large number of coils of wire surround the needle; the needle is small, and the coil of wire is brought into close proximity to it, so that the current passing

round the coil is in the position where it will produce the greatest possible effect upon the needle. To render the instrument still more sensitive, a small and light mirror, about the size of a threepenny

piece, is attached to one of the needles. We then place a lamp in front of this instrument, so that rays of light from the lamp are reflected by the mirror upon a screen placed a short distance in front. The angle formed by the reflected rays being twice the angle through which the mirror and magnet are deflected, a very small angular movement of the mirror produces a great displacement of the images on the scale. The movement of the spot of light on the screen indicates a corresponding movement of the needle. We thus get extreme delicacy, and there can be no doubt that the results are due in great measure to using this sensitive instrument. It is difficult to imagine that physiologists, such as Du Bois-Reymond, Valentin, and others would have failed in detecting the action of light on the eye (which we now know they looked for) had they employed such an instrument.

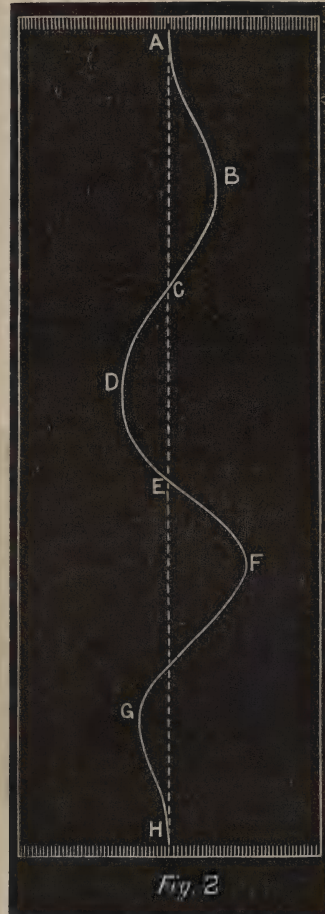


Diagram indicating graphically the action of light on the frog's eye. The divisions of top and bottom indicate divisions of galvanometer scale.

To show the experiment successfully, it is well to cover the electrodes (bearing the eye in the position before mentioned) with a blackened box, having a draw-shutter on one side, by which light may be admitted or shut out at pleasure. The action of light on its impact or removal may be better understood with the aid of the above diagram (Fig. 2). Suppose the scale of the galvanometer to be a sheet of paper drawn vertically upwards, the spot of light reflected on it from the galvanometer mirror would describe the curve A H. Let the dotted line represent the position of the galvanometer acted on by the natural electrical current of the eye in the dark. The length of the line would represent a certain interval of time, say forty seconds, and the deviations of the curved line would indicate, when to the right, an increase, and when to the left a diminution of the normal current. The action is as follows: On opening the shutter at A, and admitting light to the

eye, the spot of light swerves to the right, indicating an increase in the electrical current. After reaching a maximum at B, it then slowly falls during the continued action of light, passes across the neutral point C, and reaches a position D, where the electrical current is less than what it was in the dark. On closing the shutter, so as to shut off the light at D, there is a rebound as it were. The current increases until it reaches a point, F, when it again slowly falls, and at the close of the experiment reaches G, or it may slowly rise to near the original point H. There is, therefore, first an increase in the electrical current, and this may continue for some time, or it may slowly fall as above described; then, on removing the light by closing the shutter, the galvanometer needle gives another swing, and there is again a second rise.

Comparative Physiology of the Action of Light.—At the meeting in Bradford, we were able to state that the impact of light upon the eyes of members of the following groups of animals, viz., mammalia, birds, reptiles, amphibia, fishes, and crustaceans, produced a variation amounting to from three to ten per cent. of the normal current. At that time we

found that light caused a negative variation in the case of warm-blooded animals.

Transmission of Action to Brain.—This electrical variation may be traced into the brain. Instead of severing the eye from the brain and cutting the optic nerve, simply remove the head of the frog. Then, supposing we put one of the electrodes in contact with the surface of the brain and the other in contact with the surface of the cornea, an effect is obtained from the action of light similar to that just described.

Action due to Change in Retina.—We may then proceed to prove that this action is really due to an alteration in the retina itself. This of course is necessary, because it was a legitimate criticism that the change produced by the action of light may be due to contraction of the iris; the iris being a muscular structure contracting on the action of light by a well-known reflex mechanism in normal circumstances, and even after removal of the eye from the head. A contraction of the iris might produce a negative variation or diminution of the electrical current, but it is difficult to imagine that it could cause an increase or positive variation. In order,

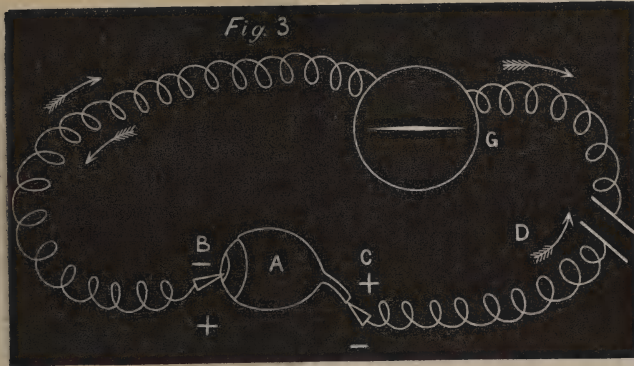


Diagram of eye showing direction of current when cornea + or -. A. Eye. B. Corneal surface. C. Optic nerve. This might represent surface of brain or surface of the body. D. Key. G. Galvanometer. The outer arrows show the direction of the current when the cornea is positive, and the inner when it is negative. The transverse section of the optic nerve is always negative to the corneal surface, but the surface of the brain or body may be positive to it.

however, to get rid of this difficulty, we cut off the front part of the eye altogether, and then, on placing one electrode so as to touch the surface of the vitreous humour while the other impinges on the transverse section of the optic nerve, a current is obtained—no doubt weaker, but still a current sufficiently strong for detecting any variation which light may produce. In these circumstances, light still produces the variation I have described. To make it more definite still, we pick out the retina with a fine glass point, and leave only the sclerotic and perhaps fragments of the choroid. Even then an electrical current is obtained; but this current is not affected by light. It is, therefore, proved that the variation produced by the action of light is due to some change or other occurring in the retina when light impinges upon it.

Rays of the Spectrum.—We next proceeded to work out this interesting point: Which rays of the spectrum produce the greatest effect? We know, of course, that the rays which are the most luminous to our consciousness are the yellow rays. By throwing a beam of light from a limelight through a hole in a shutter, and placing a prism in front of it, we were able to obtain the various colours of the spec-

trum. The eye was then brought into the various rays successively, and the result noted. To obtain comparative results, the operations were repeated as quickly as possible. It was found, on studying the results, that those rays which we regard as the most luminous produce the greatest variation. For instance, the low red rays at the end of the spectrum produce very little effect indeed, and if you go below the red into the heat rays there is no effect at all. But if you then go up the spectrum, the effect increases till you come to the yellow. There is the maximum, and if you go on to the violet the effect gradually becomes less and less until beyond the violet, when again there is no effect at all.

The investigation reached this point when the communication was given to the meeting at Bradford in 1873. The results were obtained by the use of a sensitive galvanometer, lent us by Professor Tait. But since that time, and mainly by the aid of the grant of the Association, we have employed a still more sensitive instrument. This instrument was made by Messrs. Elliot Brothers, of London; and it is probably as sensitive as we could desire. Those interested in the matter will appreciate at once the sensibility of this galvanometer, when we

state that at a distance of sixteen feet a variation of fifty divisions of our scale on the action of light may be obtained—a considerable variation, quite capable of being seen with great distinctness.

I now come to point out more specifically what we have been doing during the last two years. In the first place, after obtaining the new instrument, we repeated all the experiments detailed in the earlier communications, and found the same results.

Explanation of Variation in Current.—The first matter we have to bring under your notice is one which particularly attracted the attention of physiologists, and especially of those who first saw the experiments: viz., that sometimes, in the case of the eye of the frog, light produced an increase in the electrical current, and in other cases a diminution. This we could not at first account for. But we have been able to make out that the positive and negative variation, or the increase or diminution of the natural current on the action of light, depends upon the direction of the primary current. If the cornea be positive and the transverse section of the nerve be negative, then light produces an *increase* of the electrical current. If, on the other hand, the cornea be negative and the transverse section of nerve positive, light will then produce a *diminution* in the electrical current. It is thus conclusively shown that the current superadded, or if we may use the language, induced by the action of light, is always in the same direction; only in the one case it is added to, and in the other subtracted from, the primary current.

New Method of Experimenting.—One of the chief difficulties in arriving at the exact relations between the electrical variations and the different luminous and colour intensity of light, was the continually diminishing sensibility to the stimulus, owing to the abnormal conditions of the eye when removed from the head. You can easily understand how this occurs. When you begin the experiment, the eye is remarkably sensitive to light, and a large variation of current is obtained; but the amount of this current is gradually falling in consequence of the gradual change in the parts of the eye, owing to their loss of vitality and sensibility. In fact, the parts are dying—the blood is not circulating, and molecular and chemical changes are slowly occurring. In the case of the frog's eyes, however, it is a fact that the retina retains its sensibility from three to four hours, and sometimes longer. After a lapse of two hours or so, the frog's eye frequently remains in a tolerably stable condition, in which it does not lose rapidly. This condition may last for four or five hours. In order to get rid of the difficulty of gradual death of the parts, we tried various methods. In our earlier experiments, we attempted to get the eye removed as quickly as possible, and to make the observations rapidly. In the case of the warm-blooded animals, this did not lead to very good results, because the sensibility to light disappeared in a very few minutes. We also on several occasions exposed the posterior aspect of the eye in the living anaesthetised warm-blooded animal, and succeeded in bringing one electrode into contact with the severed optic nerve while the other touched the cornea. This method was troublesome and difficult.

We, however, did succeed in obtaining definite results. These experiments are now made in quite a different way. By placing a frog, rabbit, or pigeon, under the influence of *woorara*, the animal remains motionless. We then remove a small por-

tion of the surface of the cranium, so as to expose a portion of the brain. One of the electrodes is brought into contact with the surface of the cornea, and the other with the surface of the brain. The blood is still circulating. A current is obtained; and all the effects I have just mentioned may be observed with ease. The animal remains in this condition, retaining its sensibility to the action of light, for as long a period, in the case of the frog, as forty-eight hours. These observations led to the discovery made recently, that there is no necessity for even exposing the surface of the brain. That is to say, the action of light can be traced, if needful, through the whole body. If, for example, we take a frog, give it *woorara*, place it in a prone position, slightly abrade the skin on the surface of the head or back, or any

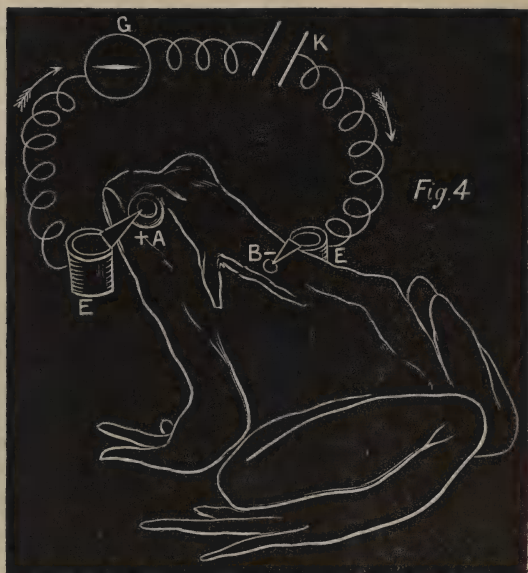


Diagram showing arrangement of apparatus in the experiment on eye of frog. A. Eye showing the electrode, E, in contact with it. B. Skin removed and subcutaneous tissue in contact with other electrode, E. K. Key. G. Galvanometer. Arrows indicate direction of current. Cornea, positive. Back, negative.

part of the body, then adjust the electrodes, one in front of the cornea and the other upon the abraded skin, we obtain an electrical current which is affected by light in the usual way. But if the electrode in contact with the cornea be shifted to some other part of the body, a current may be obtained; but this current is not sensitive to light. In order to produce the specific action of light upon the eye, the retina must be included in the circuit. This discovery enabled us to perform many experiments without injuring the animal, except to the extent of abrading or removing a small portion of skin. It at once opened up the way for making observations upon warm-blooded animals (one of the chief difficulties in our earlier investigations). For example: give a rabbit or a guinea-pig a small dose of *woorara*, and the animal remains prostrate and quiet. Then cut off a little of the hair from the surface of the head at the back of the neck, and abrade the skin so as to have a moist surface; bring the electrodes into position, placing one in contact with the abraded surface and the other in contact with the surface of the cornea, and you will at once obtain the effect.

Advantage of Chinoline over Woorara in Physiological Work.—In working with woorara, we found a difficulty arising from its interference with respiration. In these experiments with woorara, it may be necessary to maintain artificial respiration. This is a great disadvantage, because it is difficult to secure the head so firmly as to be rigid, a necessary precaution, as only a slight oscillation of the head even by the respiratory movements would cause the needle of the galvanometer to swing about and thus interfere with the investigation. We then made use of hydrochlorate of chinoline (C_9H_7N, HCl), a substance obtained by the action of caustic potash on quinine, the physiological effects of which we were then investigating. This substance has the power of producing effects somewhat similar to those of woorara, with this exception, that after a moderate dose respiration is not sensibly affected. (See *Proceedings of the Royal Society*, no. 159, 1875, p. 290.)

The Use of equal and opposite Currents.—We have performed many experiments in which equal and opposite currents were transmitted through the galvanometer at the same time, and observed the effect of light in these circumstances. By the use of resistance coils, it was not difficult to balance the current from the eye; but, owing to the inconstancy of even a Daniell's cell in such experiments as these, it was impossible to avoid fluctuations which might possibly have been mistaken for those due to the action of light. This difficulty was got over by what we term the double eye experiment, in which two similar eyes are placed in reversed positions on the electrodes, so that the current from the one neutralises that of the other. When this is accomplished, it is easy by means of a blackened box, having a shutter at each side, to allow light to fall on either the one eye or the other, and it is then shown that the galvanometer needle moves either to the right or left according to the eye affected.

Action of Light in Warm-blooded same as in Cold-blooded Animals.—By the use of chinoline we were able to make experiments of the kind just described for a considerable time, without the necessity of maintaining artificial respiration. The result of those investigations upon warm-blooded animals has been to show that in these, as in the cold-blooded, light produces first an *increase* in the electric current on impact; continued light usually causes the electrical current to diminish; and on the removal of light, there is a second rise, as described in the case of the frog. In our earlier investigations, we always observed in the case of warm-blooded animals (when the eye had either been quite removed from the body or was receiving an inadequate supply of blood), that the action of light caused a negative variation, that is, a *diminution* in the electrical current. By improved methods, however, which have the effect of placing the eye in conditions more normal, we find that light causes a *positive* variation, that is, an increase; thus agreeing with what had hitherto been observed in the eye of the frog. This is a point worthy of notice. Du Bois-Reymond showed, even in the case of sensory nerves, that physiological action caused a *negative* variation. But it appears that in the case of the retina the action of the normal stimulus is to cause a positive not a negative variation.

Experiment with the Living Lobster.—The action of light can be readily shown in this animal. Fix it loosely in a cloth, and lay it on the table in a slightly oblique position. With a small trephine remove a circular portion of the carapace, about three milli-

mètres in diameter, and expose the moist tegumentary surface. Bring one electrode into contact with this surface, while the other touches the cornea. The usual effects of light may then be noted; but in the case of the lobster, the variation caused by the impact is greater than what we have noticed in any other animal, often amounting to one-tenth of the total amount of current. Another interesting experiment, comparable with that of the two eyes I have just described, may be made on the lobster by placing an electrode in contact with each cornea. The result frequently is apparently no current, but in reality the currents neutralise each other.

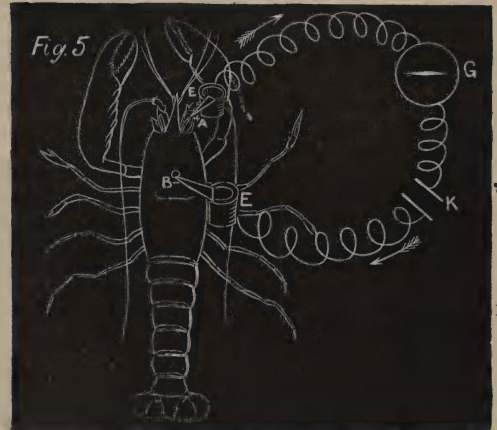


Diagram showing arrangement of apparatus in experiment on living lobster. A. Corneal surface, having electrode, E, in contact with it. B. Portion of carapace removed so as to expose moist surface for electrode, E. K. Key. G. Galvanometer. Arrows indicate direction of current.

Light falling on the one eye causes the needle to move, say to the left, while if it fall on the other eye, the needle swerves to the right.

Mode of Experiment on Eye of Fish.—Recently we were enabled to perform an experiment upon the eye of a fish in a very simple way, by a method adopted in Professor Stricker's laboratory in Vienna some months ago for another purpose. Take a fish and give it a very small dose of woorara. It soon becomes almost motionless, and sinks to the bottom of the vessel in some cases. The animal would soon die in consequence of paralysis of the movement of the gills necessary for respiration. But, if we take the animal out of the water, put it upon a glass plate, introduce a little bit of cork under each gill, and then by means of an India-rubber tube placed in the mouth allow a little water to flow over the gills, the fish will live out of water in that condition for many hours. By this method we were able to perform the experiment upon the eye of a fish with the same results.

Action of Polarised Light and Colours of Spectrum.—The next point investigated recently is the action of polarised light and the various complementary colours. We arrived at the results of our earlier experiments with the colour-spectrum in various ways, such as by passing light through solutions having various absorptive powers, by the direct coloured rays of the spectrum, etc., but always with the same conclusion—namely, that the most luminous rays produce the greatest effect. For studying the action of polarised light, we have recently used the simple contrivance of a black box, having a hole on

one side of it, placed over the eye. Opposite the hole we placed two cylindrical tubes of brass, each carrying a Nicol's prism, and between the two prisms a thin plate of quartz is introduced, thus producing the various colours of polarised light on rotating one of the prisms. The general results were exactly the same as when we used the colours of the spectrum. In all cases, the impact of the yellow rays produced the greatest effect. It has also been ascertained by this method that the effect of the *impact* of light is much more regular than the effect of its removal.

Determination of Electro-motive Force.—Very soon after the first experiments were announced, certain German physiologists said, that although we had obtained the results of the action of light which I have just described as indicated by the galvanometer, we had no right to say that there was a change in the electro-motive force as stated in the earlier communications. The galvanometer is, of

course, for the purpose of measuring the *strength* of a current by its magnetic effects; it really does not measure what is known as electro-motive force. But what is meant by electro-motive force? Take a Daniell's cell; connect the copper with an insulated conductor A, and the zinc with another conductor B of the same metal as A; by means of a delicate electrometer it may be shown that the potential of A is greater than that of B. If A and B be connected by a wire, a current will pass from A to B. The difference of potentials is called the electro-motive force. In the same manner, if we had a sufficiently delicate electrometer, it might possibly be shown that the potential of the corneal surface of the eyeball is greater than that of the transverse section of the optic nerve, or of some portion of the brain, and that, when these two surfaces are connected by an insulated conductor, a current will flow from the cornea to the transverse section of the nerve.

This difference between the potentials of the two

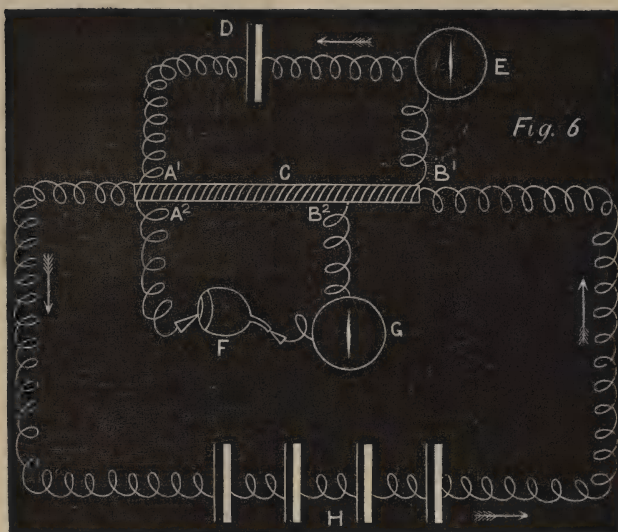


Diagram showing arrangement of apparatus in the method of determining the electro-motive force. Modified slightly from a diagram of Professor Clerk Maxwell. The arrow on the right of D should be reversed.

surfaces is the electro-motive force, or, in other words, it is the difference in condition by which positive electricity does work in moving from the one surface to the other. Now the electro-motive force acting between the extremities is the product of the strength of the current and the resistance of the conductor. The resistance is, however, independent of the strength of the current, and depends on the molecular constitution of the conductor. The strength of the current obtained from the eye, as measured by the galvanometer, might vary on the action of light; or light might produce an alteration in the resistance of the structures. It became necessary, therefore, to measure the electro-motive force of the eye, to ascertain whether or not it varied in amount on the action of light, and thus we get rid of the difficulties as regards variations in resistance or variations in amount of current. At first, in attempting this, we used Sir William Thomson's electrometer; but found that the amount of electric discharge or electric potential to be measured was too small to enable us to get good results. We could do nothing with it in this case; so that we had to adopt another method of

determining the electro-motive force. This was the method introduced by Mr. Latimer Clarke, the eminent electrician. It is called Mr. Latimer Clarke's method of measuring two electro-motive forces by a comparison of resistances (see Fig. 6). Supposing we take a Daniell's cell, D, which is known to have a very constant electro-motive force, retaining the same amount for a considerable time. This cell has wires coming from it which are brought into connection with a platinum wire about sixteen or eighteen inches long, coiled round a piece of vulcanite, A¹ B¹ (called the potentiometer). Alongside of the wire there is a scale of say 100 or 150 divisions. The current then will, of course, travel along the platinum wire which represents a certain amount of resistance thrown in the direction of the current. Then place on the other side of this a battery consisting of say four Bunsen cells, H, connected together, and, having an electro-motive force much greater than that of a Daniell. The current from H is also sent through the potentiometer of platinum-wire, but in the opposite direction; and by the introduction of resistance coils one can balance

the two electro-motive forces so that one current, as it were, neutralises the other, that is, the electro-motive force of H is made equal to that of the electromotor D. In the circuit of the first cell, the Daniell, a galvanometer, E, is placed, and when the two electro-motive forces have been balanced, the needle of this galvanometer is stationary. Then place the eye on the electrodes at F in the way I have already described, and allow the current to pass through a second galvanometer, G, and also through the potentiometer, A¹, B¹, which represents the resistance of the Daniell's cell. The needle of the galvanometer, G, sweeps round, and takes up a certain position. We then have to move along the platinum wire one of the terminals of the eye circuit, FGB²A², until we get it to a neutral point, B², at which the galvanometer needle, G, is not affected at all, or in other words until the electro-motive force of the Daniell and of the eye balance each other. It is evident, from a consideration of the diagram, that the electro-motive force of the eye will be to the electro-motive force of the Daniell, as the resistance of the portion of the wire from one end to the neutral point is to the resistance of the whole wire, as the distance A²B² is to the distance A¹B¹. Thus the electro-motive force of D is, $E^1 = R_1 c$ where R_1 is the resistance between A¹ and B¹ and c is the strength of the current in the primary circuit. Again, the electro-motive force of the eye, F, is $E^2 = R_2 c$, where R_2 is the resistance between A² and B², and c the strength of the current in the eye-circuit. Therefore, $E_1 : E_2 :: R_1 : R_2$.* Practically we found the Daniell's cell far too strong a battery to use as a standard of comparison. A thermo-electric junction of bismuth and copper, soldered together, was substituted for it. One end of the junction was constantly heated by a current of steam passing over it, and the other was kept constantly at freezing temperature. The electro-motive force of this thermo-electric junction, as estimated many years ago by Regnault, is extremely constant, and is about the one one-hundred-and-seventy-fifth part of a Daniell's cell. By means of this arrangement we were able to come to the following conclusion—that the electro-motive force of the nerve-current we have dealt with in our experiments on the eye and the brain of a frog, varies from the $\frac{1}{300}$ th to the $\frac{1}{400}$ th of that of a Daniell's cell—an extremely small amount. It was also proved that light produced an alteration in the electro-motive force. Supposing we have determined the electro-motive force in the dark, in the manner above indicated: then let light come upon the eye, the galvanometer needle of the eye-circuit will again move, and in a short time become tolerably stationary. By readjusting the terminal on the potentiometer the needle must be brought back to its original point: the length of wire along which the terminal was moved to effect this, will represent the electro-motive force. We found this change was, in many instances, not more than the $\frac{1}{1000}$ th of a Daniell's cell. But though small, it was quite distinct, and enabled us to say positively that light produced a variation in the amount of the electro-motive force. By the same arrangement, the gastrocnemius muscle of a well-fed frog gave $\frac{1}{35}$ th of a Daniell; the same muscle from a lean frog which had been long kept, gave $\frac{1}{510}$ th of a Daniell; and the sciatic nerve of the well-fed frog $\frac{1}{280}$ th of a Daniell. Dr. Charles Bland Radcliffe states, in his *Dynamics*

of *Nerve and Muscle*, p. 16, that he obtained, by means of Sir William Thomson's quadrant electrometer, from a muscle, a positive charge equal to about the tenth of a Daniell's cell, a much greater amount than ascertained by the method I have just described. As above stated, we found the electrometer of no service, as the electrical potential was too small to affect it.

Chronometrical Observations.—The last point I wish to bring under your notice, is what we have recently been doing in the way of measuring time in this research. The electrical variation has been shown to agree with our consciousness of luminous effects, the most luminous rays producing the greatest electrical variation. It became an interesting point to ascertain whether the time occupied by the action of the light upon the eye of the frog is similar to the time occupied in its action upon the eye of man. A good many years ago, Professor Donders and his pupil, Schelske, performed a number of experiments by which they determined that the time required by the human being to observe light and to signal back the impression occupied about $\frac{1}{10}$ th of a second. That is to say, $\frac{1}{10}$ th of a second is occupied by the action of light on the eye, the transmission of nerve-current to the brain, the change induced in the brain during perception and volition, the time for the transmission of the nerve-current to the

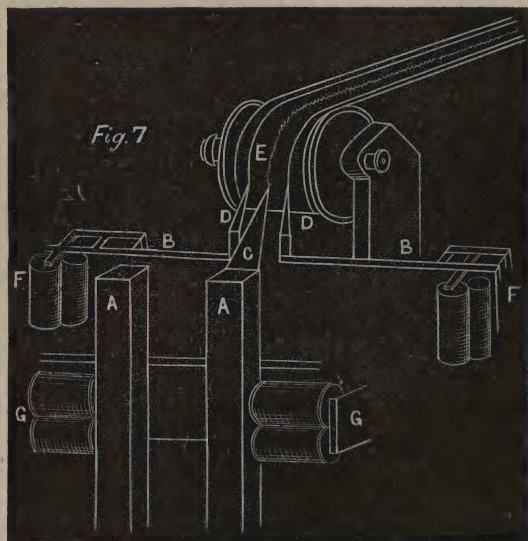


Diagram showing the recording portion of Regnault's Chronograph. A A. Limbs of recording fork, worked by electro-magnets, G G. C. Stilette on limb of recording tuning-fork. B B. Levers in connection with armatures of electro-magnets, F F, and bearing markers D D, which, along with C, record on E, a strip of blackened paper passing over pulley.

muscles, on signalling the result, and the time occupied by muscular contraction. We found that there were considerable practical difficulties in the case of the eye of the frog, some of which we have overcome, but others still face us. This part of our investigation we still desire to carry on. The instrument we are at present employing is one made by Dr. König, of Paris, and may be called a *chronograph* or time-measurer. It consists of a large tuning-fork, A A, giving 200 vibrations a second. This is placed in an upright position, and is kept in constant vibration by an electro-magnetic apparatus,

* This method is described in Clerk Maxwell's 'Electricity and Magnetism,' vol. i. p. 413.

G G. In front of a stilette, C, placed on one of the limbs of the tuning fork, a thin strip of blackened paper, E, is drawn vertically over a pulley. The action of the tuning-fork, gives a curve down the blackened paper. Each wave-like portion of the curve represents the 200th part of a second. Then on each side of this vertical tuning-fork, and on a level with its stilette, is another electrical apparatus, consisting of an electro-magnet, F F, the armature of which is prolonged, B B, and carries a marker, D D, which is on an exact level with the stilette of the tuning-fork. When a current passes through the coil the armature descends, and the moment is indicated by a mark on the blackened paper. One marker, say the one to the left, is used for signalling automatically the moment light is put on, while the other, say the one to the right, is set in action the moment the spot of light on the galvanometer scale is seen moving.

A tracing on the smoked paper will be obtained, a portion of which, indicating one experiment, is seen in Fig. 8. Here C represents the vibrations of the tuning-fork, each vibration being the $\frac{1}{200}$ th of a second. A is the line drawn by the marker moved by the electro-magnetic apparatus on the one side, and B that made by the electro-magnetic apparatus on the other. Suppose an arrangement by means of which a flash of light is given by passing an induction

current through a Geissler vacuum tube and also through the electro-magnetic apparatus with which the marker A is connected. Let this happen at *a*. The marker passes inwards and indicates the moment of time light was thrown on the eye, the result of which is an electrical variation affecting the galvanometer. The moment the observer sees the movement of the spot of light on the galvanometer scale, he completes a circuit which works the electro-magnetic apparatus supporting the marker B. This happens at *b*. The distance of *a* from *b* indicates the time between the moment light fell on the eye of the frog and the moment the needle of the galvanometer was observed to be affected by the movement of the spot of light on the scale. On counting the number of small waves we find eight; $\frac{8}{200} = \frac{1}{25}$ of a second. This, of course, would not give the real time occupied by the action of light on the eye of the frog under examination. The time between the moment light is thrown on the eye of the frog and the moment the observer of the galvanometer telegraphs that he sees

consideration, and the experiment has been modified in various ways. *c* and *d* indicate the instants when the currents ceased to pass through the electro-magnets, and when the keepers were consequently released.

We first of all satisfied ourselves that the observations made by Donders, Schelske, and others, were quite correct—that one-tenth of a second is required to signal back the impression. It can be stated at present that the action of light upon the eye of a frog occupies very nearly the same time. The experiment of time-signalling in different individuals is extremely striking; we have had the opportunity of testing the powers of various persons, as to how quickly they can signal back, and we found that there is little variation, but that each person has his own time. He may strive as much as he will to gain a minute fraction of a second, but he cannot get faster than the particular time. It was easy to find that, even if anything slightly distracts the attention, there is a somewhat longer time required to return the signal. It was also observed that expectancy of the effect caused a slight saving of time. This chronograph is an instrument of great use in physiological investigations involving measurements of time, and it may be variously applied. It is more susceptible of varied application than the chronograph of Marey.

Conclusion.—I have to mention another matter which it is but right that I should notice. After we gave our report in a preliminary paper at the British Association meeting at Bradford, we ascertained that a Swedish physiologist, Frithiof Holmgren, had worked upon the subject several years before we had attempted the investigation. Notices of his research had escaped our observation. The instrument used by him was what was termed Wiedemann's galvanometer. Holmgren was enabled to ascertain many of the points we have investigated, but from want of delicacy in his instrument he was not able to give the quantitative results at which we have been able to arrive. On ascertaining that he had been at work upon the subject we communicated with him, and he replied with great cordiality. We have exchanged various communications, and it is gratifying to know that two researches, going on perfectly independently of each other, have arrived at the same results so far as the inquiries were directed to the same points. Holmgren has directed special attention to the static electrical condition of the eye, while we have directed our attention more especially to the specific action of light considered in its physiological and psychological aspects and to its quantitative measurement. It is, however, an example of what frequently occurs in scientific research, that two persons may be working quite independently at the same time upon the same subject, and thus truth is arrived at with a greater weight of evidence. It will matter little a few years hence who first noticed the phenomenon, so long as it is a certain step in scientific discovery.



Copy of tracing obtained by Regnault's Chronograph.

the spot of light moving on the scale includes various events. It includes the action of light on the frog's eye, the transmission of the electrical variation through the coils of the galvanometer, the time occupied in overcoming the inertia of the needle, and, finally, the time occupied by the observer in seeing the movement of light and telegraphing that he does see it. We have taken all these facts into

TEACHING IN LUNATIC ASYLUMS.—The *Journal of Mental Science* for October contains an article on the Richmond Asylum Schools by Dr. Hack Tuke, in which he strongly recommends the introduction of schools into all county asylums. The article gives a detailed account of the educational system pursued at the Richmond Asylum Schools under Dr. Lalor, and is well worthy of perusal and consideration by all having the care of the insane.

ON SUDDEN DEATH FROM ACUTE PULMONARY ŒDEMA. BY DR. CANTILENA, CHIEF PHYSICIAN OF THE HOSPITAL AT BELLUNO.*

It is not a rare event in medical practice to meet with cases of acute Œdema of the lungs which are more or less rapidly fatal. In pneumonia, it is in fact the Œdema which supervenes during the period of resolution, especially if the mucous membrane of the bronchi be in a state of catarrh, that endangers life by sudden suffocation. In these conditions, the effusion of serum into the pulmonary vesicles and smallest bronchi in a short time produces asphyxia and death. It is in like manner by acute Œdema that general catarrh of the bronchi very rapidly proves fatal; and in acute tuberculosis and acute exanthematous diseases similar events are not rare.

Rokitansky, Niemeyer, Oppolzer, and Roncati, speak of sudden death from pulmonary Œdema in persons with a large chest and short neck, without preceding disease, and after a full meal. Finally, there are some rare cases of death occurring in a few minutes from this condition, in individuals having structural disease of the heart or of the larger vessels.

It is to the consideration of this last form of acute pulmonary Œdema, with which organic lesions of the heart are connected, that my observations are directed. Before giving a description of individual cases, I think it will be useful to point out what are more especially the organic diseases of the heart or of the larger vessels in which sudden death readily supervenes, sometimes in a few moments and in the midst of every appearance of health.

It would seem that those sudden deaths occur frequently in the subjects of insufficiency of the aortic semilunar valves, the more so if there be also atheroma of the commencement of the aorta, when the force of the muscular tissue of the heart is enfeebled and wearied by excessive activity or by the degeneration of the muscular fibres. This is the way in which sudden death occurs in these cases. Physiological observation teaches us that the circulation through the heart should be effected in the following manner. At the moment of systole, by the contraction of the cardiac muscle, and especially by the raising of the aortic valves and their application to the openings of the coronary arteries, very little blood can enter these vessels; hence the supply of the viscus with arterial blood must occur during diastole, when the lowering of the semilunar valves and the relaxed state of the cardiac muscle favour the ingress of blood. In order that this circulation may be active and salutary, the cardiac systole must be strong, so that the flow of blood may take place without difficulty, and the arterial circulation may be facilitated during diastole. If the flow of arterial blood into the coronary vessels be impeded either by insufficiency of the aortic semilunar valves, or by weakness of the muscular tissue of the heart—and especially if there be also sclerosis of the aorta and coronary arteries—we shall have all the conditions in which an emotion or an effort may gravely disturb the function of the heart. The consequent pulmonary congestion and the sudden pouring out of serum into the ultimate air-passages certainly has a large share in preventing the heart from resuming its regular action, since by them the right ventricle

is prevented from emptying itself of the blood which has been poured into it by the *venæ cavæ*. Mauriac and Bucquoy (*L'Union Médicale*, 1869) approve this theory, and adduce facts in its support.

In sudden death from acute pulmonary Œdema in cases of heart-disease, two morbid conditions of the organ are to be especially recognised as favouring the fatal result—viz., insufficiency of the aortic valves, by which the circulation in the coronary arteries is impeded during diastole, and weakening of the cardiac muscle, with the consequences of a systole insufficient to sustain the venous circulation; whence arises stasis, with retardation of the arterial circulation. Atheroma of the aorta and of the coronary arteries aids in disturbing the circulation through the tissue of the heart; and it is when the circulation through the coronary arteries is impeded, that the phenomena of angina pectoris may be presented, which may end fatally in the same manner, as appears from the observations recently made by Sée.

It cannot be denied that sudden death may take place also in diseases of the aortic valves of other kinds, when there coexist morbid states of the cardiac muscle by which a cyanotic condition of the heart is kept up. In narrowing of the aortic orifice, especially when very advanced, the ischemia of the cardiac muscle may certainly determine an attack of acute pulmonary Œdema, which, if it pass beyond a certain limit, and be associated with deficient oxidation of the blood in the brain, may produce sudden death.

Finally also, in diseases of the other cardiac valves, especially the bicuspid, where the venous circulation may be retarded, and the flow through the arteries impeded, with impaired nutrition and consequent degeneration of the cardiac muscular tissue, death may occur suddenly under a strong emotional impression, or after an effort by which the movements of the heart are arrested. In this case, chronic bronchial catarrh determines and maintains chronic pulmonary Œdema, not limited to the minute bronchial tubes and alveoli of the lungs, but diffused also through the interstitial tissue of the lungs, and accompanied with general Œdema and dropsy of the serous cavities. Any slight derangements of the movements of the heart then much more readily disturb the pulmonary circulation, and to the chronic Œdema is superadded an acute one of a most dangerous character. In these circumstances sudden death more frequently occurs, when the patients have not been taught by experience to surround themselves with the greatest quiet of body and mind, and where the general dropsy does not call for absolute rest by rendering movement difficult.

Acute pulmonary Œdema, and especially that connected with lesions of the heart, is recognised by the following symptoms. The patient usually has a cyanotic turgid face; the ocular conjunctivæ are congested, and the jugulars are distended; the expiratory action is prolonged, and the breathing is accompanied with râles which may often be heard at a distance. There is more or less frequent cough, sometimes dry, or with transparent or frothy serous sputum; sometimes the sputum is turbid from admixture of epithelium, or reddish from blood. The cough may be absent if the fluid lying in the ultimate bronchi do not determine reflex phenomena, especially if the narcosis of the nervous centres hinder reflex movements. The pulse is generally small, often irregular, in very severe cases intermittent. With regard to physical signs, the percussion-

* *Giornale Veneto di Scienze Mediche*, July, 1875.

sound, apart from the special signs of the disease by which the acute œdema is accompanied (such as pneumonia, acute pulmonary tuberculosis, etc.), is either scarcely tympanic, or there is a dull tympanic sound, according to the quantity of serum effused into the alveoli and small bronchi. Auscultation sometimes detects disseminated subcrepitan râles, or these may not be heard because they are masked by large rhonchi; sometimes no râle is audible, and in rare cases a more or less blowing sound is heard. The sensorium is generally stupefied; sometimes there is subdelirium, and in very severe cases coma, according to the degree of non-oxygenation of blood or deficiency of arterial circulation in the encephalon, and of narcosis produced by carbonic acid.

This mournful array of symptoms is much more distinctly marked in the acute pulmonary œdema which supervenes in cardiac diseases, and which ends rapidly, sometimes in a few instants, in death. Cases have sometimes occurred in which individuals in a good state of nutrition, and with very little apparent disturbance, have lain down quietly in the evening, and on first awaking have been attacked with terrible agonies, which have ended in death before the medical man could come. I have three times been a spectator of a lamentable result of this kind, which in two cases it was possible to ward off in previous attacks by seasonable aid. These observations of mine furnish examples of particular interest, in regard to the fact that, without a full knowledge of the state of the heart, the appearance of perfect health, disturbed only by very slight mental emotions, or by slightly fatiguing locomotion, may deceive the physician, even when he is urgently called in and hears the history of a first slight attack, which perhaps has entirely passed off without any treatment before his arrival.

CASE I.—Cavalier M., Prefect of the province of Belluno, a little more than sixty years of age, of rather lymphatic temperament, presented, on coming to this place, vigorous nutrition and perfect health. He said that he sometimes felt very slight trouble after a rather tiring walk; for the rest, beyond some bronchial catarrh of not long duration, and a state of hypochondriasis with which he had been troubled for some time in consequence of mental anxiety, he had had no disease of importance. In the spring of 1871, without any premonitory symptoms of importance, he awoke one morning with sudden dyspnoea and failure of the heart, which passed off before my arrival. A second and more severe attack occurred a few days later, in the same condition of general health. It came on towards the morning, and still continued when I arrived. I found the patient sitting up in bed, with troubled breathing; he had a violent cough, with râles audible at a distance, and expectorated a frothy mucous fluid. His face was red and tinged; the conjunctivæ were congested, the jugulars were dilated, and a cold sweat bathed his whole body. The pulse was frequent, irregular, jerking; the sensorium was recovering from the stupor, into which it had fallen when the paroxysm set in. Under the use of cutaneous stimulants, applied before my arrival, and of ammonia internally, he soon revived.

Examination of the chest gave the following results. Auscultation detected large rhonchi, which masked every other respiratory sound. The apex of the heart beat in the seventh intercostal space; the long diameter of the heart was increased. There was a murmur accompanying the second sound,

rough at the apex, and perceptible in the second intercostal space; the first sound over the aorta was dull. The pulse only presented occasional intermittence, but the artery felt large and rather tortuous, with perceptibly jerking diastole.

The diagnosis which I made was, aortic insufficiency, hypertrophy and dilatation of the left ventricle, tendency to asystolia, with sudden attacks of acute pulmonary œdema of a most dangerous character. This diagnosis was confirmed by Professor Pinali, whom I called in consultation.

The whole of 1871 was passed through without fresh attacks; the patient daily took bromide of iron, and appeared to be in better health; he attended to his ordinary business, and could even undertake a rather long journey without inconvenience. But in the winter of the next year, on being called to the patient before daybreak one morning, I found that to the previous symptoms was added a state of amnesia; the patient, who could not be roused by any means, repeated the same word at every expiration; and a cold sweat bathed his whole body. I at once bled him to a small amount, after which he regained his mental faculties, his respiration became calm, and the movements of the heart regular: in a word, he revived, but more slowly than usual, and was obliged to keep his bed for some days in consequence of a feeling of general weakness and of the supervention of bronchial catarrh. But, beyond the bodily ailment, he was seized with mental depression from the idea that his end was approaching. He was able to resume his occupation, and to go during the next summer to Reggio in the Emilia, his native country. In September of that year, after a day in which he had suffered much from melancholy but had presented no new morbid symptom, he went to bed rather early, and on awaking in the morning was seized with a new and more terrible paroxysm, which caused his death before I could arrive. I was not allowed to make a necropsy.

CASE II.—Signora N., aged seventy-five, of lymphatic temperament, and fat, had never suffered from any disease of importance. On leaving Trivignano to reside in the Belluno district, she suffered from frequent attacks of bronchial and intestinal catarrh. She had a first attack of acute pulmonary œdema in 1872, without any premonitory symptoms beyond a little disturbance after quick locomotion; it was of very brief duration, and did not prevent her from rising from bed on the same day. She presented unmistakable signs of slight aortic insufficiency, with hypertrophy of the left ventricle. She had a second more severe attack a few months later. Having lain down one evening without feeling any symptoms, she awoke after a very short sleep with much trouble of the breathing and circulation. Hoping for relief, she rose from the bed and sat on the sofa, where the difficulty of respiration increased, and she became unconscious. When I saw her, she was beginning to regain consciousness, but soon again lost it; her face was tinged and cyanotic; the jugulars were distended; the breathing was much disturbed; she had a dry cough with sonorous râles, and a small irregular pulse. Cold water had been sprinkled over her, and sinapisms applied to the limbs. I ordered a blood-letting, after which the scene was entirely changed; she did not, however, remain altogether free, as she had an attack of broncho-pneumonia from which she did not recover for some days. She had no other morbid symptom till December, 1873, although she had been much frightened by the earth-

quake in June of that year. At the above-mentioned date, she went to bed after a very cheerful evening, and had been to sleep but a short time, when she was awakened by an attack of her unwelcome visitor. She was more terrified by the attack than usual, and got out of bed in obedience to a sudden call to pass urine, hoping to relieve herself of the distressing sensation which had seized her; she was unable to return to bed without the aid of her servants, and died before my arrival. A necropsy was not permitted in this case.

CASE III. Daniel N., aged fifty, had always had good health until 1860, although exposed to occasional inconvenience in his calling as an omnibus conductor. At that time he was seized with acute articular rheumatism, which did not leave the heart free; it recurred several times, each time affecting the circulatory centre. Notwithstanding this, he could, with slight difficulty, attend with his wife to a wine and spirit business. After her death, however, and after some domestic difficulty, he addicted himself to drinking, and became unable to bear any fatigue. Œdema of the lower limbs appeared, and on July 17, 1873, he was admitted into hospital, where he remained with physical signs of severe organic disease of the heart and anasarca, until April 17, 1874, when he was discharged in a satisfactory condition. On February 2, 1875, he was again admitted, and the following symptoms were noted the next morning:—General œdema, weak irregular pulse, temperature 100° Fahr., difficult respiration, cough with frothy mucous sputa, tongue red at the margins, slight meteorism, sero-mucous diarrhoea, urine very scanty and high-coloured. He had passed a very restless night, and complained of pains in the right hypochondriac region. Inspection of the chest during a deep inspiration detected depression of the epigastric fossa, and retraction of the lower intercostal spaces; the thorax was raised *en masse*. Percussion was clear, even over the upper part of the liver and over the heart. Auscultation detected moist râles diffused everywhere through the chest. The heart's impulse could neither be seen nor felt; on percussion, the organ was found to be increased in all its diameters. There was a harsh murmur, which replaced the first sound at the apex, and was equally strong in the second right intercostal space and in the carotids: with the diastole, there was heard at the apex a murmur, less distinct over the aorta. Over the pulmonary artery the two sounds were weak. The liver extended downwards and was hard and painful; the spleen passed behind the axillary line.

Under the use of digitalis and morphia, and with perfect rest, there was notable improvement; the cough became less troublesome, the respirations more free, the urine very abundant; the diarrhoea ceased, and the œdema disappeared. On February 6, five days after his admission, he declared himself to be in a very satisfactory state, and asked for a more liberal diet, which was allowed him. But, on being called to him scarcely a quarter of an hour afterwards, I found him in a state of stupor, with turgid purple face, distended jugulars, and irregular respiration with tracheal râles; it was impossible to rouse him by stimuli applied in various ways, and in a very short time he was a corpse.

The necropsy was made forty-eight hours after death. There was still slight œdema of the lower limbs; the subcutaneous fat was scanty, and the muscular tissue flabby. In the head there was slight

subarachnoid œdema, and the nervous pulp was slightly dotted. Both lungs were emphysematous at the margins, and presented abundant effusion of serum, which escaped on section; in the right lung were patches of hæmorrhage. The mucous membrane of the bronchi was red and turgid. There was a little limpid serum in the pericardium; the heart was hypertrophied and weak; its walls were in great part covered with fat. The left cavity was dilated; the walls of the ventricle were thick, and its parenchyma friable, of the colour of dry leaves. The endocardium covering the mitral valve was thickened, wrinkled, and rigid; the valve was contracted and funnel-shaped; the chordæ tendinæ were thick, and the papillary muscles hypertrophied. The endocardium of the aortic semilunar valves was thick and rigid, of cartilaginous appearance; the valves were fixed in the diastolic position, leaving only a small triangular aperture, capable of admitting a goose-quill; there were calcareous incrustations on the tubercles of Arantius. The right cavities were dilated, and the endocardium was opaque. The aorta, immediately above the valves, presented a slight cylindroid dilatation; the lining membrane was atheromatous, and the openings of the coronary arteries had lost their round form and had thickened and rigid edges. The degeneration was less apparent in the coronary arteries. The liver was enlarged and of nutmeg appearance; the spleen was also enlarged, and its parenchyma was hard, and of a dull red colour.

In this last case, admitting that the stenosis of the aortic valves might render their insufficiency less dangerous, the coexistence of atheroma with dilatation of the commencement of the aorta and the deformity of the openings of the coronary arteries, with the enfeebled action of the cardiac muscle, constituted so many other causes capable of disordering the arterial circulation in the heart, so that even under very trivial influences the movements of the organ were liable to become less strong and at last to stop. Again, the stasis maintained in the right ventricle by the stenosis and insufficiency of the bicuspid valve, concurred in retarding the coronary venous circulation: so that in this heart the conditions most fitted for disturbing its nutrition and action existed permanently. They were combined with defects of form and of function more than sufficient to produce sudden death.

CASE IV.—This case, the subject of which is still living, offers an example of repeated attacks of acute pulmonary œdema in an individual affected with stenosis of the aortic opening and hypertrophy of the left ventricle.

Signora N., aged sixty-three, suffered in her youth from rheumatico-catarthal affections, for which she was repeatedly bled; but her general health remained good. In the winter of 1873 she was seized for the first time, shortly after awaking, with a feeling of distress and failure of the heart's action. On my arrival, I found her sitting in bed with her face rather cyanotic, short breathing accompanied with râles, pulse small and frequent, somewhat irregular. The apex of the heart-beat in the sixth intercostal space; the impulse was feeble, but prolonged, and somewhat diffused; the longitudinal diameter of the heart was increased; a harsh murmur accompanied the first sound and was perceptible over the aorta and carotids; the second sound was dull. Up to the present time she has had many attacks of more

or less severity, but as yet, with appropriate aid, she had escaped a fatal termination.

I must not omit to mention what are the most approved remedies in a case in which the physician, suddenly called in, finds that he has to deal with so dangerous a disease. I will not speak of the more appropriate curative agents for the œdema which appears in pneumonia and bronchitis; we will imagine individuals, apparently in perfect health, suddenly seized with the terrible paroxysm; or persons with heart-disease, who enjoy health so far as to dismiss from their minds the possibility of approaching death. If there be cyanosis and distension of the jugulars, and there be evidence of collection of fluid in the thorax and the sputa be more or less sanguinolent, blood-letting is an excellent remedy, provided that the patient be not too much exhausted. Oppolzer advised that the patient should be bled in the sudden position, and recommended the commencement of fainting as the proper moment for closing the vein. This precept of the illustrious Viennese physician may be useful in many cases, but it is certainly not applicable if the œdema be connected with grave disease of the heart, in which death may very readily follow deliquium. If signs of intense œdema be present and expectoration be wanting, external and internal stimulants are useful; in my cases, I have successfully employed solution of ammonia, Marsala wine, and sinapisms. An emetic may be used, when the strength allows it, and the carbonic acid narcosis does not hinder reflex action; but it must be remembered that this remedy acts on the vagus and medulla oblongata, and produces depression of the heart and spasm of the peripheral vessels; hence it must be used with great reserve, and in every case should be accompanied by stimulants. In irritable individuals, bromides are indicated; especially the bromide of iron if there be anæmia.

From what has been already said, I believe that the following conclusions may be derived.

1. Sudden death from acute pulmonary œdema may occur in well-nourished robust individuals, with a short neck and large chest. Attacked with severe dyspnoea while at table or after a full meal, they fall senseless and cyanosed. It may occur in persons of healthy appearance, who manifest only slight disorder of the circulation and respiration from mental exertion or fatiguing locomotion, which are capable of accelerating the circulation; and even without these the individual may be suddenly attacked. Finally, sudden death may occur in the various forms of lesions of the valves and muscular tissue of the heart, even at the time when the existence of salutary compensations leads one to hope that the danger of an early end has been warded off.

2. In individuals a little advanced in years, with insufficiency of the aortic valves and hypertrophy of the left ventricle, sudden death with symptoms of acute pulmonary œdema may occur when the action of the cardiac muscle has become enfeebled; by which the circulation in the coronary arteries has been rendered difficult, not only because the insufficiency of the semilunar valves impedes the coronary arteries, but because the stasis in the coronary veins tends to produce the same effect. Atheroma of the commencement of the aorta and deformity of the openings of the coronary arteries, especially if the degeneration extend some way within these vessels, may even produce rapidly fatal paroxysms of angina pectoris.

3. Attacks of acute pulmonary œdema and syncope, even rapidly fatal, may occur in narrowing of the aortic orifice, when the flow of blood fails in the coronary vessels, and the brain and centre of cardiac innervation remain unprovided with the necessary arterial supply.*

4. Individuals who suffer from complicated lesions of the heart, attended with dropsy, catarrh, etc., although revived for a time, remain liable to die suddenly, if, in addition to the signs of enfeebled action of the cardiac muscle, the conditions be present which are capable of rendering difficult the circulation in the coronary arteries.

CONTRIBUTIONS TO THE GENERAL PATHOLOGY OF CYLINDER-EPITHELIUM. BY DR. L. GRIFFINI, OF TURIN.†

In a preliminary communication, published in the *Gazetta delle Cliniche*, for August, 1874, I enumerated the more important of the results at which I had arrived in the study of the pathological changes of cylindrical epithelium. My experiments and observations at that time had special reference to the ciliated epithelium of the larynx, trachea, and bronchi. Now, however, having explained the other forms of cylinder epithelium, and obtained new results which appear interesting, I think it opportune to give a *resumé* of the whole. I intend to publish a complete memoir on the subject as soon as certain observations have been completed.

1. *Changes in Cylinder Epithelium in Tuberculosis.*—In 1863, Förster, speaking in his treatise on pathological anatomy on inflammations of the mucous membrane of the larynx, observed that, in cases of chronic inflammation of long duration, the mucous membrane undergoes in certain points, or even generally, a special change, which he calls *dermoid metamorphosis*. That is to say, the mucous membrane, naturally destitute of papillæ, assumes a papillar structure, and appears invested with an epithelium having the character of pavement epithelium.

Dr. Wahlberg, in his work on tuberculous ulcers in the larynx, published in 1872, observes that around tuberculous ulcers of the superior vocal cords, in place of the normal stratified ciliated epithelium, there is a thin pavement epithelium; and that this change occurs even when, the epithelium not being perforated but only thinned, the tuberculous ulcer is developing itself. He observes also that the mucous membrane at some points assumes a papillar structure, and endeavours to show that these changes of the epithelium are not to be regarded as the result of an inflammatory process.

Having extended my observations to the mucous membrane of the trachea, and of the large, middle-sized, and small bronchial tubes, I have ascertained in severe cases of chronic pulmonary tuberculosis in which the larynx and trachea were affected, that not only around the ulcers on the superior vocal cords, but at every point of the mucous membrane where tuberculous nodules were present, the ciliated cylinder epithelium was transformed into pavement epithelium. To these superficial tuberculous nodules corresponds a small hemispherical elevation, which on vertical section appears to be formed of a giant-

* According to Traube, an extraordinary slowness of the pulse has sometimes been observed to indicate difficulty of the circulation in the coronary arteries.

† *Gazetta delle Cliniche*, August 3, 10, and 17.

cell with epithelioid cells, rarely perfect, and numerous lymphoid cells. The surface of the mucous membrane is covered by a hyaline layer, which is sometimes entire, and follows the elevation; sometimes it is thinned, and is entirely lost towards the summit of the elevation. These elevations are always covered, sometimes with a single layer of polygonal more or less flattened epithelial cells, especially towards the summit; sometimes with two or three layers of polygonal cells, of which the most superficial are much flattened. In proceeding from the summit of each elevation, along the two sides of a vertical section towards the normal epithelium, we find a gradual transition from pavement cells to short superficial ciliated cylinder-cells, and then to longer ones, having among them oval and round cells, as in the normal epithelium of the trachea. The tuberculous nodules in the trachea appear to be imperfect (perhaps from their age), so that it is not always easy to demonstrate the typical structure of the nodule; and sometimes, without being able to see true tuberculous nodules with giant-cells, even the circumscribed elevations of the mucous membrane above described, but only a more or less abundant infiltration of migratory cells, we find the surface of the mucous membrane covered for some distance (as far as a centimètre), with pavement epithelium. But even here there are always observed, either towards the confines or in some part of the extent of the tract of transformed epithelium, one or more tuberculous nodules undergoing granulo-fatty degeneration, some of which raise the pavement epithelium, thinning or perforating it. This explains to me why Förster referred the transformation of epithelium in the larynx to a simple chronic inflammatory process, especially when it is remembered that, when he wrote, the structure of tubercles was not so well determined as it is now. I certainly do not deny that it is possible that simple chronic inflammation may give rise to this change of the epithelium; nor that in tuberculosis the whole mucous membrane of the larynx, trachea, and bronchi, or only of the parts around the tubercles and ulcers, may be affected with inflammation; but I merely observe that, in the cases studied by me, the transformation in question was always limited to the small area corresponding to the more or less perfect tuberculous nodules, and that, when distinct nodules were wanting, there were always traces of nodules, or nodules which had undergone retrograde metamorphosis and were being absorbed. In the trachea, the epithelium, when changed over a large area, presents altogether the appearance of epidermis. It is composed of a deep layer of oval cells with a large nucleus, with their greatest diameter perpendicular to the surface of the hyaline layer on which they rest; this layer is succeeded by others (two to four) of larger polygonal cells, with round granular nucleus surrounded by abundant protoplasm; finally, there are other layers of flattened cells with their greatest diameter parallel to the surface of the mucous membrane; these flattened cells appear here and there to be partly raised, as occurs in epidermis and other forms of pavement epithelium, the superficial layers of which undergo desquamation. This transformed epithelium has a thickness equal to the normal cylinder epithelium, and is only thinned here and there, either by the existence of superficial cheesy nodules or by desquamation of its more superficial layers. The inferior surface of this epithelium presents a slight undulation, which gives a papillar

appearance to the mucous membrane. To these slight undulations of the inferior surface of the epithelium correspond equal alternate elevations and depressions of its upper surface; these are not plugs of epithelium which insinuate themselves into the connective tissue of the membrane, as there are in the skin, forming distinct papillæ. I have never been able to observe a true papillar structure, such as Förster and Wahlberg describe. This change of the typical form of the epithelium is constantly met with also around tuberculous ulcers of the trachea, some of which are covered with a false membrane which, in its physical and chemical characters, and microscopic structure, exactly resembles the fibrinous membrane of croup.

In the large bronchi (four cases), in the middle-sized and small ones (two cases), I observed circumscribed elevations of the mucous membrane, with which corresponded one or more superficial tuberculous nodules covered with pavement epithelium. Here the elements of the tuberculous nodules are in a better state of preservation, perhaps because of their more recent formation. Tuberculous ulcers are more rare in the bronchi than in the trachea and larynx.

I have met with some other changes of the epithelium in fresh preparations of tuberculosis of the larynx, trachea, and bronchi; such as, in all the cases examined by me, ciliated cylindrical cells with two, three, or even four or five nuclei. It was distinctly ascertained in every case that these cells were quite isolated, and that the appearance was not produced by two or more cells lying together with their nuclei at different levels; moreover, coloration with logwood removed all doubt as to whether they might be not true nuclei, but pus-cells which had penetrated the epithelial cells. I have not in any case found cylindrical epithelium cells containing pus-globules, but have been readily able to distinguish them by the size of the globules, and especially by colouring with hæmatoxylin, which gives the nuclei an intense tint. In some cases I have found ciliated spherules (such as are found in the mucus in coryza) and goblet-cells; but of these I will speak in treating of catarrhal inflammation.

The constant occurrence of this transformation of the epithelium corresponding with ulcers and superficial tuberculous nodules of the tracheal and bronchial mucous membrane having been thus ascertained, the desire arose to observe whether it also took place in tuberculosis of other mucous membranes with cylinder epithelium (of the uterus, Fallopian tubes, intestine, etc.). Up to the present time I have been able to examine only two cases of tuberculosis of the uterus and Fallopian tubes; one of which was obligingly placed at my disposal by Professor Bizzozero, to whose private collection it belonged; the other came into my hands from the medical clinic, through Professor Rovida.

On scraping the mucous membrane of the fundus uteri in the second case, and making preparations by teasing out the specimens, there were isolated numerous epithelial elements, very large and somewhat flattened, and among them other similar but smaller ones. They all had a shape tending to the hexagonal, and were generally furnished with two, three, or more central oval vesicular nuclei, with one or two distinct nucleoli; the cellular protoplasm was fully granular, and contained numerous spherical corpuscles of yellowish appearance and uniform size.

The appearance of these corpuscles led me at first to believe that they might be organisms which had penetrated into the cells; but there were more outside the cells, and acetic acid dissolved them, and rendered the cells which contained them pale and transparent. They were then large albuminoid granules. Besides these large elements, there were perfectly spherical bodies with large granules which prevented the nucleus from being well seen. Some (specially belonging to the Fallopian tubes) had at one point a long prolongation similar to that of the cylindrical cells, and at the other, traces of a ciliated margin, from which, however, the cilia had fallen off; they therefore seemed to be cylindrical cells which had become enormously distended and spherical through the accumulation of the large yellow granules. They resembled the so-called inflammatory corpuscles of Gluge, which are met with in catarrhal pneumonia. Acetic acid caused the fine granules to disappear, but the large and yellow ones remained, and appeared more distinctly to be fat-granules. There were also, especially in the Fallopian tubes, cylindrical cells deprived of cilia, distended or more or less misshapen, and full of granules and fat-drops. Besides these, there were fragments of pavement epithelium.

Vertical sections of the mucous membrane of the body and fundus of the uterus, in both cases, revealed the existence of numerous tuberculous nodules in various grades of development; some of which, being superficial, had produced elevations on the surface of the mucous membrane, covered sometimes with a single layer of rather flattened pavement-cells with a large protruding nucleus, sometimes with two or three layers of less flattened pavement-cells. At the points also where the tuberculous nodules had perforated the epithelium and produced microscopic ulcers, the epithelium at the side of the ulcers presented the appearance of pavement epithelium for a varying extent.

The epithelium also of the tubular glands of the uterus had undergone the same change. In almost all the sections that were made, the tubes of the glands were found enormously dilated, especially towards their blind extremities, with numerous largely granular spherical bodies, with large cells having large granules, and with mucus-corpuscles and cylindrical epithelial cells in a state of fatty degeneration. Very frequently along the wall of the tube were one or more tuberculous nodules, and the corresponding epithelium had a rather flattened prominent appearance. There was a gradual transition from the cylindrical cells (at the sides of the nodules) to the cells which gradually assumed the pavement form), being without cilia or traces of a ciliated border. It seemed, therefore, that we had not to deal with pre-existing cylindrical cells which had become crushed by pressure during the development of the tuberculous nodule. Sometimes the nodule had perforated the epithelium. At some points, where the epithelium had entirely fallen off, the surface of the mucous membrane was covered with a hyaline layer twice or three times as thick as in the normal state, and presenting constrictions here and there. Sometimes the mucous membrane at these points presented a white, shining, homogeneous appearance (sclerosis), and capillary vessels with thickened, homogeneous, white shining walls. Where the mucous membrane was transformed into a yellowish granular substance (cheesy degeneration), and the cylindrical epithelium still existed, this had a

yellowish granular appearance, and the cells were misshapen, with indistinct outlines, and without cilia and a visible nucleus.

In the Fallopian tubes the tuberculous nodules were more isolated and more recent, so that the transformation of the epithelium was most distinctly observed.

The demonstration of the change in tuberculosis of the intestinal mucous membrane was more difficult, since the epithelium becomes detached and destroyed very soon after death. But, after having examined many tuberculous ulcers of the intestine, although I have not been able to obtain such demonstrative specimens as those in tuberculosis of the mucous membrane of the air-passages, uterus, and Fallopian tubes, I have in several cases been able to ascertain that the few epithelial cells still existing near the margins of the ulcers had all the appearance of pavement epithelial cells with large nuclei. This leads me to believe that the transformation in question takes place also in the intestine.

II. *Reproduction of Cylinder Epithelium.*—The results of the experiments on the reproduction of the ciliated cylinder epithelium of the larynx and trachea of dogs, published by me last year, may be reduced to two principal ones. 1. The newly produced epithelium, instead of preserving the type of the pre-existing epithelium, has the characters of pavement epithelium with very flattened cells, granular protoplasm, and a large nucleus with distinct nucleolus. 2. If, in scraping the trachea, we use a scraper with a sharp edge, a fibrinous false membrane is produced, having all the physical and chemical characters of the false membrane of croup; but this does not occur when a scraper with a blunt edge is used.

In some new experiments made during the present year, not only on dogs but also on rabbits, I ascertained in the former that, according as the scraping, even with a blunt-edged instrument, was forcible or slight, a fibrinous false membrane was or was not produced, the extent of which corresponded with that of the scraping. In the rabbit, the mucous membrane was found to be still more delicate, and very gentle scraping was necessary in order to avoid the production of fibrinous exudation; catarrhal exudation, however, was produced. In two cases, in which the scraping was rather forcible, a fibrinous false membrane was produced, which extended above the cartilaginous rings of the trachea, and was raised a millimètre above the level of the mucous membrane.

In all the experiments (thirty) which I have hitherto made on the trachea and larynx of dogs and rabbits, I have found that the newly produced epithelium is of the pavement kind, and is formed of one or several layers of cells, according to the time allowed to elapse after the scraping. By teasing out specimens, by immersion in Müller's solution and in macerating fluids, I have been able to observe other peculiarities in the structure of the newly formed cells.

If the epithelium be detached with a bistoury from the margin of the solution of continuity, and teased out, there are found greatly enlarged ciliated cylinder cells, with turbid granular protoplasm, and having a large nucleus tending to the round form, sometimes provided with two large very distinct nuclei; in rare cases, there are two smaller round nuclei, or the nucleus is undergoing division. Ver-

tical sections show that these are the last cells of the pre-existing epithelium, which have undergone turbid tumefaction or degeneration, in consequence of the traumatic irritation. Besides these, there are epithelial cells, ciliated indeed, but shorter than the normal cylinders, and very large. These cells have an irregular form, slender and scanty cilia, a finely granular protoplasm, and a large oval nucleus, with its longer diameter parallel to the ciliated margin, and therefore lying transversely to the cell. The opposite surface of the cell is of the same dimensions as or larger than the ciliated end, and presents more or less deep hemispherical depressions, or a single depression, with the concavity always directed downwards. The cell frequently presents at one side or below a lamellar expansion of greater or less length, which, when viewed in front, appears as a thin transparent lamina of slightly granular protoplasm. This expansion is not directed perpendicularly downwards, but in a horizontal direction, with only a slight obliquity. When these cells appear still in conjunction with the neighbouring ones, these expansions are seen to be turned in the same direction. In these preparations there are also seen many other ciliated cells with the characters above described, but gradually becoming shorter, until they are reduced to a thin protoplasmic lamella with long scanty cilia and flattened oval nuclei. Fragments of epithelium are often found containing all these forms of ciliated cells, and also fragments in which there are two series of cells, an upper ciliated one (the cells gradually becoming shortened) and a lower with large roundish granular cells with one or many nuclei, which insinuate themselves more or less deeply into the protoplasm of the cells of the first series, producing the depressions in them. In a front view, these epithelial fragments at first sight seem to be formed of very granular flat cells without distinct outlines; but on altering the forms, or causing the fragment to roll over, it is seen that the turbid granular appearance depends on the cilia, which, viewed in front, appear as obscure points. There are also seen spherical ciliated cells with an oval nucleus lying transversely, which have a perfect resemblance to the ciliated spherules met with in the mucous exudation of the first stage of acute coryza. Finally, there are non-ciliated pavement-cells, rather flat, with a large granular nucleus. These cells, when viewed in front, whether isolated or united in patches, appear to be of various shapes, but having a tendency to an elongated lozenge shape, with slender and long prolongations which are insinuated among the other cells; their protoplasm is finely granular, and their outlines pretty distinct; they have a very large round or oval nucleus, and some have two nuclei. From these patches of pavement epithelium proceed prolongations which narrow to a point, but never have their free extremities enlarged, and containing clear spherules, like the pseudopodia which Klebs, in the reproduction of epithelium in the frog's web, has seen emitted from the pre-existing cells, which become contracted, and to which he attaches much importance in the reproduction of pavement epithelium. These prolongations are nothing but the elongated extremities of marginal cells; and if the fact observed by Klebs were verified here, there should be no difficulty in finding cells which have emitted pseudopodia.

Transverse sections of the trachea corresponding to solutions of continuity in course of repair show that in rabbits a good quantity of epithelial tissue is

already produced fourteen days after the removal of the epithelium. Not being able to enter here into minute particulars, I will briefly describe the appearance which these sections generally present. In the normal vibratile cylinder epithelium at the margin of the solution of continuity, a copious infiltration of migratory cells takes place, which insinuate themselves into the turbid granular protoplasm of the swollen cylinder cells (this is observed a few hours after stripping off the epithelium.) Further inwards there are still ciliated epithelial cells; but among these, in the deep layers of the epithelium, there is a great increase of the number of round and oval cells which are normally present. In proceeding gradually from this point, the number of round cells increases, while in the superficial layer the ciliated cells become gradually shorter than the true cylinders. This new epithelium, immediately on leaving that already existing, begins to diminish in thickness and gradually becomes thinner; so that at last it comes to be formed of two layers of cells, then of a single layer of rather short ciliated cells with large nuclei, and finally of flattish non-ciliated cells with large round or oval nuclei, very like epithelioid cells. In two preparations from the trachea of the rabbit forty-three and forty-eight hours after removing the epithelium, in which a false membrane was produced, the newly produced epithelium, in uninterrupted continuity with that already existing, passes on to the false membrane, and lines its lateral walls and a good part of its upper surface. In the subjacent mucous membrane there are at first abundant extravasation of blood, which later become absorbed, and an infiltration of wandering cells, abundant at first, but becoming scanty after one or two days. It is not possible to make out any relation between the elements of the mucous membrane and the newly formed epithelium.

I have studied the reproduction of cylinder epithelium, ciliated and non-ciliated, in the mucous membrane of the cornua uteri of the dog, of the intestine, stomach, and gall-bladder; but, as my observations are not yet complete, I reserve further communication regarding them.

III. *Croupous Inflammation*.—By many clinical and pathological observers, croupous inflammation is placed among specific inflammations; and it is maintained that the false membranes produced in croup and diphtheria are not common exudations arising from violent simple irritation, but that they are characteristic of croup and diphtheria. But, in 1826, Bretonneau produced false membrane by injecting oil and tincture of cantharides into the trachea of dogs; and more lately Carbonaro of Naples, Delafond, and others have obtained the same result with oil of turpentine, dilute sulphuric acid, nitrate of silver, chlorine, corrosive sublimate, ammonia, etc. Croup has also been observed in children after the inhalation of chlorine and after the entrance of boiling water into the larynx. In all these observations microscopic examination was wanting, and it is only recently that more definite results have been obtained by the labours of Reitz, Trendelenburg, Oertel, and others. They have shown that false membranes exactly resembling those of croup may be produced by the introduction of diluted ammonia into the trachea of rabbits. It proved that these results must strike a severe blow at the prevailing ideas regarding the specific nature of croup; when Bayer

and Mayer, having repeated the experiments, alleged that true croupal false membrane was not produced by ammonia, but only a dense catarrhal exudation. It therefore seemed to me of great interest to ascertain how much truth there was in these contradictory observations. During the past year I have made numerous experiments on dogs, first with weak, and then with pure, ammonia, waiting for the death of the animals, or killing them at various times after the instillation of four to eight drops of ammonia into the trachea. Without entering into minute particulars, the following are the results to which my experiments have led me.

1. If very weak or diluted ammonia be introduced through a tracheal fistula into the air-passages of a dog, the only result is excessive hyperæmia with abundant mucous exudation (acute catarrhal inflammation).

2. If strong ammonia be introduced, the animal dies after a period varying from twenty-eight to sixty hours, and in the trachea are found greyish-white false membranes of varying thickness, sometimes amounting to 0.08 inch, which sometimes line the trachea like a tube, and sometimes appear as large patches scattered here and there. When examined in the fresh state under the microscope, they are seen to consist of a network of glistening white fibres, with wandering cells in the meshes. Strong acetic acid causes the fibrous network to disappear. There is therefore not a catarrhal exudation, but real fibrinous false membrane, which behaves with acetic acid and solution of chloride of sodium just like croupous false membranes in man. Vertical sections of the larynx and trachea corresponding to the artificially produced false membranes, revealed other points of resemblance to ordinary human croup, viz., the shedding of the epithelium, of which only a few cells remained around the openings of the gland-ducts; the raising of the false membranes at points corresponding to the gland-ducts by the mucous secretion which could not be poured out on the mucous membrane; and finally the peculiar glistening appearance of the membrane and its intimate structure, especially in the stratified arrangement of the network, which consisted of large trabeculæ lying parallel to the mucous membrane, and giving off smaller anastomosing trabeculæ upwards and downwards.

3. In one case I observed abundant bacteria and micrococci, which could be seen by the naked eye in the form of small white patches scattered here and there over the false membrane, and over the trachea and bronchi, where there was no false membrane. But in this case the dog had been dead some hours; while in other cases these organisms were quite absent. I therefore fully believe that the coincidence was accidental; and this still further proves how, in a favourable soil, micrococci and bacteria introduced with the inspired air multiply prodigiously. It cannot be said, then, that they existed from the first, and that they, and not the ammonia, produced the croup.

I also produced large fibrinous false membranes by injecting into the trachea of dogs, by a cannula and syringe, a drachm or a drachm and a half of a four per cent. solution of tartar emetic; while in other experiments the injection of ten or fifteen drops of the same solution produced simple inflammation without false membrane.

Not only by chemical means, but by mechanical—that is, by scraping the mucous membrane of the

trachea—have I been able to produce croupous false membranes. According as the scraping was forcible or gentle, and was made with a sharp or blunt-edged instrument, the exudation produced was simply catarrhal or croupous. I have no doubt whatever of the nature of the false membranes produced by chemical or mechanical means, inasmuch as they present in all respects the naked eye appearance, the chemical reaction, and the microscopic structure of the false membrane of croup.

I have obtained fibrinous false membranes perfectly similar to those in the trachea, by the action of ammonia on the mucous membrane of the nares.

If, then, a true form of croupous inflammation can be produced artificially by a common irritant—ammonia—and if the same substance, used in the diluted state, produces in dogs common catarrhal inflammation, there ought to be no hesitation in abandoning all idea of the specific nature of croup. The production of a croupous or of a catarrhal exudation by forcible or by gentle scraping, or by the use of a sharp or blunt scraper, shows further that, independently of chemical action, the nature of the exudation is in relation to the irritation; weak irritation producing catarrhal, and strong, croupous exudation.

4. *Catarrhal Inflammation.*—It is commonly believed by pathologists that in every case of inflammation of cylinder epithelium there is an abundant production of mucus, which is derived not only from the muciparous glands, but in great part from the cylindrical cells, which, in the normal state, may be considered as unicellular muciparous glands. I have observed, in some cases of inflammation artificially produced by the injection of tincture of iodine or tartar emetic into the trachea of dogs, that sometimes the cells, instead of producing mucus, become tumid with turbid protoplasm, formed of large highly refractive granules, which often completely hide the nucleus. On treatment with acetic acid, the large granules entirely disappear, the cells become pale, homogeneous and transparent, and the nucleus appears. Here, then, there is not precipitated mucus, but large albuminoid granules—the albuminoid degeneration of Virchow. Treatment with Müller's solution causes the protoplasm to swell up, and the cells burst and are transformed into goblet-cells. I have met with this change in natural pathological processes, as in a case of tuberculosis of the uterus and Fallopian tubes, and in catarrhal bronchitis.

In other cases of artificial inflammation of the larynx and trachea, I have found many of the vibratile cylinder cells rather enlarged, with two generally oval nuclei, one of which lies in the upper part of the cell near the ciliated border, and has its greater diameter perpendicular to that of the cell. A few others present the ciliated border, detached and raised from the margins of the cells, but united to a certain portion of nucleated granular protoplasm, of a form tending to spherical; this protoplasm being sharply defined from the remainder of the cell by a clear line. This is, perhaps, a mode or production of the so-called ciliated spherules, a goblet-cell being left remaining. But it is very probable that the greater number of ciliated spherules observed in catarrhal exudations proceed from the spherical and oval cells of the deep layers, which, as we have seen in cases of reproduction of epithelium, being capable of becoming ciliated before assuming the cylindrical form, are pushed up first to take the place of the cylindrical cells which have

fallen off, and then are eliminated, the subjacent cells continuing to grow, and a copious infiltration of migratory cells taking place. In vertical sections there are found ciliated spherules with an oval nucleus lying transversely, lying at the level of the free ciliated extremity of the neighbouring cylindrical cells, there being below the spherules no portion whatever of cylindrical cell, which would be seen if the ciliated spherules arose, as Ranvier asserts, from the division of the cylinders. Besides this, I have never been able to observe a cylindrical cell in course of fission. The goblet-cells are formed independently of the production of ciliated spherules by the mucous transformation of a portion of their protoplasm and the elimination of the mucus in the form of drops, to which the plateau of the cell, deprived of cilia, frequently adheres.

In a case of inflammation of the trachea, induced by tartar emetic, the cylindrical cells which produced mucus and were transformed into goblet-cells, were united in groups at various points, separated by a considerable interval from the ciliated cells, which were only tumid and granular.

I have also observed in the deep layers of the epithelium of the trachea round cells reduced to a large transparent vesicle with an oval nucleus, pushed towards the periphery, and having scanty protoplasm at its ends. Hæmatoxylin, which precipitates and colours mucus, renders the clear part of the cell granular and strongly coloured. Here, then, there is not cellular dropsy, but mucous degeneration.

SATTLETON ON CONJUNCTIVAL DIPHTHERIA.

In the *New York Medical Record* for August 7, is a communication by Dr. Robert Sattler on diphtheria of the conjunctiva. He writes:

Within the last few months a number of patients have presented themselves at the clinics of the Ophthalmic and Aural Institute, suffering from conjunctivitis diphtheritica, the disease assuming somewhat of an epidemic character. The comparatively infrequent occurrence of this disease in America has been a sufficient inducement for the publication of some of the cases, and for a review of the clinical history and literature of conjunctivitis diphtheritica.

Diphtheritic conjunctivitis is of frequent occurrence in Germany, especially in the northern part. In some of the cities, particularly Berlin, the disease has repeatedly assumed the character of an epidemic. In Berlin, epidemics were described by Von Graefe and Hirschberg in 1852-54, and also in 1866-70; commonly in the spring and autumn months. A small epidemic is reported by Horner, of Zürich, in 1869. During a period of five years, Jacobson of Königsberg observed, among 10,000 eye patients, forty cases of sporadic and twenty-two cases of epidemic diphtheritic conjunctivitis. In Switzerland, Belgium, England, France, Russia, and America, only isolated cases have occurred, and the disease has never assumed the character of an epidemic.

Diphtheritic conjunctivitis usually develops acutely in most of the cases. It occurs as 1, an idiopathic affection of the conjunctiva, or as 2, a complication of other affections of the conjunctival membrane (catarrhal and trachomatous conjunctivitis), or 3, it complicates diphtheritic affections of the pharynx or larynx, which, however, happens very rarely.

In the cases enumerated below, the disease occurred as a complication in four cases; in two cases

the disease manifested itself without any antecedent ocular trouble or constitutional affection. In one of the last cases, the history was obtained from the brother, who stated that the patient, for several days before the disease manifested itself, was permitted to play with a child affected with diphtheritic sore throat, and that this child had frequent attacks of violent coughing.

The disease seems to attack children more frequently than adults, and occurs as frequently as an affection of one eye as of both. Those of a scrofulous or tainted constitution, and especially those suffering or having suffered from antecedent ocular trouble, dependent upon a constitutional taint, are more prone to this disease. The disease may limit itself to certain portions of the conjunctiva, or it may involve the entire conjunctival membrane.

Several varieties or forms of the disease have been described by Von Graefe and Hirschberg. The latter mentions three varieties:

1. The disseminate or partial form.
2. The confluent form.
3. The diffuse form. (Von Graefe has described this as the confluent.)

The disease may be commonly divided into four stages: 1. An initiatory or catarrhal stage, which, however, is not always present, and if present is generally of short duration; 2. the stage of deposition and diphtheritic infiltration; 3. blennorrhœal; and 4, the stage of cicatrisation.

The disease usually commences abruptly, with marked and rapidly progressing swelling, and a feeling of heaviness and stiffness of the eyelids. The lids are excessively painful to pressure. The local temperature is generally very decidedly increased. On opening the eyelids a thin, hot, yellowish fluid exudes. These symptoms become rapidly more pronounced, the disease often reaching its maximum intensity in the course of one or two days.

The swelling of the eyelids, as the disease advances, becomes more tense and harder, and excessively hot and painful. The cutaneous surface presents a stretched and shining appearance. The discharge is moderate, as compared with a case of acute blennorrhœa. Every attempt to open the lids is followed by a gush of thin yellowish fluid containing flocculi.

On examination of the conjunctiva, at the commencement, it will generally be found that the diseased process commences in some portion of the conjunctiva tarsi, and there limits itself, or it extends over the fornix to the conjunctiva of the sclerotic, thus infiltrating the conjunctival membrane in its totality, and even overlapping the cornea to a certain extent. The diseased conjunctiva, instead of presenting its natural pale red colour, now is pale white or yellowish, the result of an infiltration of a fibrinous product in the subepithelial, tunica propria, and subconjunctival layers. The conjunctiva is more or less elevated or thickened; its surface is very finely granular. At different points it presents a drawn-in or puckered appearance. The colour of the diseased conjunctiva varies from a pale yellowish to a blanched or glistening white.

As the disease advances, the swelling of the lids becomes more and more tense, red, and painful. The chemosis of the ocular conjunctiva becomes more pronounced, it often encircling the cornea like a hard and unyielding wall. The discharge also increases; it is straw-coloured, and contains more flocculi. Constitutional disturbance usually is present

at this time, if it has not manifested itself before. There is an increased bodily temperature, the thermometer ranging from 100° to $103\frac{1}{2}^{\circ}$, accompanied by the usual symptoms of fever, anorexia, malaise, prostration, etc.

After the disease has existed from four to eight or nine days, the transition into the third or blennorrhœal stage takes place. The swelling, redness, and tenderness of the lids diminish. The external surface of the lid has lost its tense and glossy appearance, and the eyelids are soft and wrinkled. The thin flocculent discharge changes into a creamy pus. On examination of the eyelids, they are more readily everted, and the diseased conjunctival surface is now changed; it is no longer white and shining, but red and somewhat irregular. At the places of the white and somewhat raised infiltration we see ulcers, with an irregular base and ragged outline, the result of the necrosis of the tissue. Conjunctival hæmorrhages are now apt to occur.

In the conjunctiva tarsi, deep cicatrices most frequently result. The scars which form in this locality leave more unfavourable consequences (entropion, trichiasis, etc.) than those occurring in the fornix or lower lid.

The third or blennorrhœal stage varies in duration from two to eight or ten weeks, a partial relapse often taking place in this stage.

The fourth, or stage of cicatrisation, is also of variable duration, and the boundary line between it and the third stage is not sharply defined. In this stage of the disease cicatrisation goes on, and cicatrices of greater or less extent and depth result. Often the cicatrices, especially in children, are superficial and of no considerable depth, escaping observation in many cases. The cicatrices, as before stated, are generally confined to the tarsal conjunctiva of the upper lid, serious deformities of the lid resulting in many cases.

Complications of the cornea may occur at any stage of the disease, assuming the character of central and marginal ulcerations. The most destructive and rapidly progressing corneal complications are met with in the second stage of the disease.

Complication of the cornea manifests itself by objective and subjective symptoms.

A slight circumscribed and uniform haziness of the cornea appears, usually in its central portion, or it may occur at the margin or at any part of the cornea; in some cases the whole cornea becomes uniformly hazy and infiltrated.

When this condition is once present, its course is generally rapid. The ulcerative process advances rapidly and leads to partial or total destruction of the cornea. When the destructive process reaches the membrane of Descemet, the ulceration is in some cases temporarily arrested; this layer bulges, and the centre of the ulcer now presents a shining or bead-like appearance, after which, perforation almost invariably follows. Corneal complications in this stage (second) almost inevitably result in perforation.

The central ulcers are commonly deep and circumscribed, whereas the peripheral ulcers are more superficial and extensive.

Corneal complications occurring in the third stage are much less destructive and less rapid in their course, the ulceration much resembling the corneal complication in conjunctivitis blennorrhœica. In the last stage (cicatrisation) corneal complications

are rare, and, if they occur, are dependent on the mechanical irritation of the cicatrices.

Mention is made by Samisch of an implication of the lower lid, the inflammation there assuming a diphtheritic character and resulting in the formation of abscesses. He ascribes this in part to a propagation of the diphtheritic process from the conjunctiva, and in part also to the corroding effect of the secretions, from the constant contact of the mucous membrane of the swollen and pendent upper lid with the outer marginal portion of the lower lid. A peculiar diffuse inflammation of the cellular tissue of both upper and lower lids was observed in one of my cases; small superficial abscesses resulting near the marginal portion of the lid.

Conjunctivitis diphtheritica must be considered as highly contagious. It was observed (von Graefe) that the secretion from a case of blennorrhœa developed the disease. In one case the disease evidently originated as a result of the direct conveyance of a detached portion of the diphtheritic product from a child suffering from diphtheritic sore-throat, during an attack of coughing.

In a certain number of cases, conjunctivitis diphtheritica is developed in persons suffering from constitutional disease, or diphtheria of the larynx or pharynx; whereas, in other cases, it occurs solely as a local or independent affection of the conjunctiva, or as a complication of chronic affections of the conjunctiva, in scrofulous or tainted subjects.

The prognosis in all cases of diphtheritic conjunctivitis is grave; depending on the extent of conjunctiva involved, rapidity of progress, early corneal complications, age and constitution, and the hygienic surroundings of the patient. Where the cornea is affected early in the disease, the prognosis is almost invariably bad.

Von Graefe observed nine total destructions of the eyeball among forty cases affected with the disease. Hirschberg, among ninety-four cases, found that thirty-four cases proved fatal, and fifty-four resulted in recovery.

Treatment.—Before mention is made of the treatment recommended by various authorities, I will briefly mention the treatment pursued in the cases enumerated below, which consisted mainly in local and also general measures, viz., placing the patient under the most favourable hygienic and dietetic influences possible.

When one eye was affected, the other was hermetically closed. In children this was found frequently impracticable, and was therefore abandoned. In adults it was invariably practised where one eye was still unaffected. Ice compresses were constantly applied, and the most scrupulous cleanliness observed. The eyes were cleansed every ten minutes with lukewarm water, to which a small quantity of salt had been added; the salt relieved the irritant effect which even the lukewarm water would produce.

After the blennorrhœal stage had set in, the cautious application of nitrate of silver was commenced. Corneal complications were treated with atropia.

The treatment of diphtheritic conjunctivitis, owing to the extreme danger of the disease, has engaged the attention and study of many prominent oculists. The use of strong solutions of nitrate of silver in the second stage is universally condemned, on the same ground that it is injurious in all fibrinous and croupous exudations of other mucous membranes. A strict antiphlogistic treatment in the form of con-

stant ice compresses is thought, and has clinically proven to be the most efficacious method. Ice applications are well borne by almost all patients.

Local abstraction of blood has been strongly recommended by von Graefe. He applied a number of leeches to the nose and temporal region.

Scarification of the healthy portion of the affected conjunctiva has been practised; this latter plan has, however, been abandoned, for the disease would frequently propagate itself to the incisions made.

Arteriotomy, or division of the outer commissure, has been recommended. This is certainly of value in lessening the pressure of the swollen eyelids upon the globe; but here also the danger exists of a diphtheritic infiltration of the lips of the wound. If the disease be only partial and the diseased process confined to the central portion of the conjunctiva tarsi, there is less danger, and here the performance of the operation may be considered warrantable.

Mercury has been strongly recommended (von Graefe and others). Jacobson substituted the application of moist warmth, where cold compresses were not tolerated by the patient. Bertin mentions a case where it was thought to hasten the appearance of the blennorrhoeal stage, by cauterisation; but this is considered an extremely dangerous and unwarrantable proceeding.

Ice applications, frequent and absolute cleanliness, and placing the patient under the most favourable hygienic and dietetic influences, comprise the chief and most beneficial remedial measures.

Illustrative cases are given.

J. MILNER FOTHERGILL, M.D.

POPOFF ON THE CHANGES IN THE BRAIN IN TYPHOID FEVER, IN TRAUMATIC INFLAMMATION, AND IN TYPHUS FEVER.

L. Popoff (*Virchow's Arch.*, xiii. 421, and *Centralblatt*, no. 37, 1875) under von Recklinghausen's direction examined the brains of twelve individuals who died of abdominal typhus. In all there were changes of an acute active inflammatory character in the vessels, in the neuroglia, and in the ganglionic cells. In the first of these, viz., the vessels, the cells in the walls, or the fat and pigment-cells applied to them, were in a state of proliferation; in the neuroglia there was division of the nuclei, and in the ganglion-cells both active proliferation processes and penetration of wandering cells. The former manifested themselves in division and increase in number of the nuclei, then in division of the protoplasm, whereby the individual parts either did or did not possess a nucleus. With regard to the occurrence of wandering cells, it is to be remarked that they lay partly around the cells (in the so-called perivascular spaces) and partly also within the nerve-cells, and by the penetration of such cells, division of ganglion-cells was often brought about. In the preparation, these wandering cells fell out of the ganglionic cells, so that the latter appeared as if perforated. Beyond being in and around the ganglion-cells, these wandering cells were arranged in rows around the vessels, and here and there along the nerve-fibres, but still preferably on the ganglionic cells.

Essentially the same changes were to be observed in inflammatory processes, and specially in traumatic inflammations, which were produced in a variety of ways upon dogs and rabbits, only here the active changes in the nerve-elements were more pronounced;

whilst in typhoid fever the penetration of the wandering cells was in full operation before the proliferation phenomena in the ganglion-cells occurred, and in addition many granule-cells appeared which were quite absent in the case of typhoid fever. Very interesting are the experiments in which the author injected colouring matters, specially China ink, into the brain. This curious result was obtained, that a short time after the injection the chief mass of the pigment lay in the ganglion-cells, which had evidently taken it up by virtue of their own forces, as wandering cells containing colouring-matter which could have accounted for the pigment were absent, and as nothing similar could be produced in dead brains. At this time granule-cells were still absent, but they were present in large quantities, and enclosed the pigment, after the inflammation had lasted longer, whilst the pigment could not, or could only in a very slight degree, be detected in the nerve-cells. The author concludes from this that the granule-cells which generally occur in the brain in acute inflammation are (in part at least) changed nerve-cells.

In another paper in the *Centralblatt* (no. 36) the author records the results of the examination of the brains of three patients who died of exanthematous typhus, in the wards of Professor Botkin, of St. Petersburg. In this disease also the author finds the following. (1) There is such a collection of the wandering cells in the perivascular spaces, as occurs in abdominal typhus. (2) There is also penetration of the wandering cells into the ganglion-cells, and division of nuclei in the latter. (3) There is infiltration of the neuroglia with young wandering cells. (4) The proliferation phenomena in the walls of the vessels are more pronounced and extensive here than in ileo-typhus. Infiltration of fat and pigment in the vascular walls may also be observed. Capillary extravasations are sometimes to be noted. (5) An interesting, but at the same time very striking result, is the formation, in typhus, of small nodules in the substance of the brain. They were found in the cortical substance of the cerebrum, cerebellum, corpus striatum, etc., and were 0.105–0.18 millimetre long, and 0.075–0.09 millimetre broad; they often had a rounded form. These nodules, with a low power, presented appearances very similar to miliary tubercle. Like the latter, they were found generally, though not always, next the vessels. With high powers (300 diameters) these nodules were seen to consist chiefly of indifferent newly formed elements, which could not be distinguished from lymph-corpuscles or white blood-corpuscles. Sometimes they consisted of such corpuscles alone, and this specially in the peripheral finely granular layers of the cerebrum and cerebellum. Where, however, in fibrous tissue nervous cellular elements were present in considerable proportions, as in other layers of the cerebrum, in the corpus striatum, other elements, nearly as large as the nuclei of the ganglion-cells, entered into their composition. The changes already described in the nerve-cells are often very pronounced around these nodules. In the first described form of nodule, consisting of indifferent elements like white blood-corpuscles, there is never a finely granular degeneration of the central part to be observed, as is often seen in tubercle. Neither giant-cells nor a special stroma were to be observed. These nodules, from their character and origin, are apparently completely analogous to the nodules described by Wagner as occurring in some parenchymatous organs, such as the liver and kidneys in abdominal typhus.

These nodules were observed in two cases out of the three. The relation of these nodules to the brain-symptoms, owing to the epidemic being at an end, was not made out. In both cases the patient died on the fourteenth day.

W. STIRLING, D.Sc., M.D.

SCHÜLLER ON THE CHANGES IN THE CEREBRAL VESSELS UNDER THE INFLUENCE OF THE EXTERNAL APPLICATION OF WATER.

M. Schüller (*Deutsch. Arch. f. Klin. Med.*, xiv. 566, and *Centralblatt*, no. 36) trepanned the skull of rabbits, and found that an obstruction to the outflow of venous blood, disturbance of the respiration, or pressure on the abdomen, produced strong injection of the pia mater. After section of the vagi this effect was not produced, on account of the preponderance of the inspiratory movements. Fear and pinching generally produced narrowing of the vessels, sometimes after previous dilatation. Ice applied to the exposed dura mater produced marked narrowing of the vessels, which was much weaker on the side from which the cervical sympathetic and the superior ganglion were excised. Cold applied to the abdomen produced an instantaneous dilatation of the vessels of the pia mater on the uninjured side, and generally no change upon the injured side. A moist warm compress on the abdomen, on the contrary, produced narrowing, which was succeeded by dilatation upon the compress cooling. Complete immersion, as a general rule, acted like a compress. The injection of cold, and generally also of warm water into the rectum, dilated the vessels. Packing with the wet sheet, whereby the animals became sleepy, was followed by a very temporary dilatation, which gradually passed into constriction. Similar results were obtained during opium-narcosis, but not by dry packing. Rubbing of the abdomen or back was accompanied with constriction or varying changes in the calibre of the vessels, but in a weaker degree when the sympathetic and the superior ganglion were extirpated.

The changes above described occurred also in curarised animals, although in this case the filling of the vessels of the brain was somewhat less pronounced. After section of the sympathetic at the second vertebra, there was a pronounced dilatation of all the vessels of the pia mater, and the application of water was without any effect upon it. Cold directly applied to the freely exposed cutaneous sensory nervous trunks which issue upon the back produced constriction; heat, dilatation of the vessels of the pia mater on the same side. Section of individual cutaneous nervous trunks was accompanied by a temporary dilatation of the vessels of the pia mater on the same side.

The blood-pressure in the carotid, from manometric observations, rose rapidly when cold water was applied to the abdomen, and then fell considerably; with warm water applications, it was just the reverse, with slight variations.

The occurrence of all these phenomena is explained by the author through the changes in the supply of blood to the vessels of the pia mater in consequence of a constriction or dilatation of the peripheral current-areas in the skin. The movements of the heart and respiration are only indirectly concerned in the result, at one time assisting, at another hindering. The reflex influence of the thermal stimu-

lation of the cutaneous nerves upon the vessels of the pia mater is, according to the author, of subsidiary importance, and acts rather in an inhibitory manner. The second phenomena which occur with long duration of the stimulus, and which are exactly opposite to the initial phenomena, may be explained by the changes in the conditions in the cutaneous vessels and their consequences.

From the results of his experiments the author draws the following conclusions regarding the therapeutical employment of different applications of water to the human organism. It produces (1) a restitution of the normal vascular tonus (specially of the brain); (2) the restoration of normal blood and lymph currents in the brain; (3) diminution of overfilling of the brain with blood; (4) the restoration of the normal nutrition of the nerve-elements; and (5) of the normal reflex relation between the cutaneous nerves and the brain. In the insane a 'methodical' water-treatment is for the most part not to be recommended, because one cannot say how far the resistance of the cerebral blood-vessels is to be depended upon. WM. STIRLING, D.Sc., M.D.

ANATOMY AND PHYSIOLOGY.

HEYNSIUS ON THE COMPOUNDS OF ALBUMEN, OF BLOOD-SERUM, AND OF WHITE OF EGG.—A. Heynsius (*Pflüger's Archiv*, ix. 514, and *Centralblatt*, no. 30, 1875) in the introduction to his paper, reviews the results of Schmidt, Eichwald, Landois, etc. The author justly prefers the method of heating after the addition of acetic acid and a few cubic centimetres of a concentrated solution of common salt (or sulphate of magnesia) as the best test for the presence of traces of albumen.

1. The author attempted to obtain solutions of albumen containing the smallest possible quantity of salts, and for this purpose employed a dialyser of special construction, and with a surface of two square centimetres. Rain-water was at first employed for the dialysis. White of egg, diluted with water and saturated with a solution of common salt, was dialysed for seven days. A considerable precipitate formed in the dialyser; the fluid filtered from this became turbid at 113° Fahr., and the filtrate of this at 118.4°. If a solution of common salt were added to it, both the temperature at which coagulation took place, and the temperature at which the albumen was completely separated, rose. The albumen could not be completely removed by boiling with a smaller quantity of salt than 0.4 per cent. The filtrate from this precipitate, when further dialysed, formed again a precipitate in the dialyser, and the filtrate from this became turbid even at 28°, with a neutral reaction. An addition of salt acts just as before. The blood of oxen and horses shows similar phenomena. There is, therefore, present in blood-serum and in white of egg a compound of albumen, which is decomposed at a low temperature. On the author employing distilled water instead of rain-water, he could no longer obtain this compound of albumen. From this it appeared that on using rain-water the solution of albumen in the dialyser very soon became neutral, but retained its alkaline reaction with distilled water. The same difference was shown by directly mixing the solution of albumen with water. There must, therefore, be a substance in the rain-water which fixes the alkali.

The zinc oxide contained in the rain-water was probably the substance. The experiments to prevent this action by careful acidulation failed. The author then reviews the results of Schmidt and Aronstein. The solution either free from or at least very poor in salts did not coagulate at 212° Fahr., and even when mixed with alcohol showed only a little turbidity, although it had constantly an alkaline reaction, which even in solutions poor in salts exercise a very disturbing influence on the coagulation. The author is of opinion that Schmidt and Aronstein overlooked this action. As they observed no coagulation in solutions acidulated with acetic acid, the author ascribes this to too strong acidulation. The author records experiments which show the disturbing influence of alkalies and acids in solutions poor in salts.

2. A solution of albumen, which became turbid at 105.8° Fahr. after dialysis was heated to 113° , and brought into solution by the addition of a little alkali in solution (four cubic centimetre of a one-tenth normal solution of potash to 0.568 albumen). A faintly turbid fluid of alkaline reaction, which showed the reactions of paraglobulin, resulted. After precipitation with acetic acid, it was only soluble in water and oxygen, as long as upon burning it left an ash which had an alkaline reaction. The author made no experiments upon the fibrino-plastic action of this solution. This precipitate in the dialyser gradually passed into insoluble albumen. The alkali-albuminates are varying bodies according to the concentration of the alkali employed for their preparation.

3. Just as the alkalies, so has the concentration of the acids an influence upon the properties of the acid albumen formed. Paraglobulin is scarcely soluble in carbonic acid; if the solution is allowed to stand, the carbonic acid disappears and the albumen is again excreted. If a stream of carbonic acid be passed through a solution of alkali albuminate, the coagulation-temperature is lowered. If a solution of white of egg be treated with varying quantities of acetic acid, then the temperature at which coagulation occurs rises. These phenomena, however, are only to be well observed when dilute acetic acid and relatively large quantities of albumen are employed.

WM. STIRLING, D.Sc., M.D.

FELTZ AND RITTER ON THE ACTION OF BILE AND ITS DIFFERENT ELEMENTS.—In Robin's *Journal de l'Anatomie et de la Physiologie* for March and April, we have the conclusion of MM. Feltz and Ritter's experimental researches on the action of bile and its different elements on the system. We avail ourselves of an abstract prepared for the *Detroit Review*.

The experiments were commenced by injecting fresh ox-bile into the veins of dogs; generally one of the veins of the neck was chosen. The experiments were made with great care. The condition of the animals subsequent to the injections was minutely noted. Analyses of the blood and urine were made, and the results arrived at were, briefly, as follows.

Fresh bile has no serious action on the economy, unless introduced in large quantities. In doses of from two to eight grammes the bile is rapidly eliminated by the kidneys, the salivary glands, and the intestines. The animal only experiences a temporary malaise. After larger doses the symptoms become more grave; bilious diarrhœa sets in, with vomiting, first of the food, then of bile and blood; the urine becomes bloody; the animal loses flesh rapidly and refuses food; the temperature is below normal. But

in spite of the gravity of the symptoms, the animal usually recovers, if the poisoning is interrupted before the nervous system is affected.

In large doses of from fifteen to twenty-five cubic centimètres bile is a violent poison, producing, first tetanic convulsions, then coma and death. In none of these experiments was any yellow colouring of either the sclerotic or mucous membranes observed. The blood did not coagulate readily; seemed more fluid than normal. The serum was coloured red, showing an escape of the colouring matter of the corpuscles. The globules themselves had lost their elasticity. If compressed by pressure of the covering glass, on a glass slide, under a microscope, they did not recover their form when the pressure was removed.

Indican was found in the urine, as well as the biliary salts, and a feeble proportion of the colouring matters of the bile.

In the next series of experiments the biliary salts obtained from ox-bile were injected into the veins. A mixture of the glyco-cholate and tauro-cholate of sodium was first used, and in subsequent experiments the salts were employed separately. It was found that the mixture of the salts was, when used in any considerable quantity, an active poison. The system re-acted vigorously in the effort to throw off the poison, and a great increase of all the secretions was the result. The intoxication manifests itself especially in the red corpuscles of the blood. These were dissolved; their colouring matter escaped largely in the urine, and in one or two instances crystals were found in the blood. This altered condition of the blood produced difficult circulation, rupture of the capillaries, and consequently hæmorrhage from the mucous surfaces.

If the action of the poison were slow, fatty degeneration of the liver and kidneys was produced. In view of the fact that these lesions of the liver, kidneys and blood, are those noted by the best authors as characteristics of severe cases of jaundice, it is suggested that the alarming accidents often arising in these cases, as hæmorrhage or convulsions, may be due to individual conditions which increase the secretion or retention of those salts.

The salts were found identical in the character of their action on the system, but not in the degree—the tauro-cholate being very much more energetic than the glyco-cholate.

The derivatives of the acids of the bile are next studied. Glyco-cholic acid breaks up into cholic acid and glycocoll; tauro-cholic acid into cholic acid and taurine. Cholic acid, by the loss of successive molecules of water, may be transformed into choloidic acid and dyslysine. Of all these substances, cholic acid alone was found to have any effect on the system. Its effects resemble those of the biliary salts, but are incomparably weaker.

The colouring matters of the bile are rapidly eliminated by the kidneys, and produce, beyond an obstinate constipation, slight lowering of the temperature and increase in the quantity of the urine, no marked effect upon the system. To produce even a slight and transient jaundice, it was necessary to inject very large doses.

From the injections made with cholesterine, it was concluded that cholesterine is not a poison in itself, but that it may accumulate in the blood beyond the maximum of its solubility, and in that case it becomes a cause of emboli, which of course depend for their gravity on their situation.

ARNOLD ON THE CONDITION OF THE WALLS OF THE VESSELS DURING THE EMIGRATION OF WHITE BLOOD-CORPUSCLES.—Dr. Jul. Arnold, of Heidelberg (Virchow's *Archiv*, vol. lxii.) has examined the conditions under which red blood-corpuscles emigrate, and the question arose whether the white blood-corpuscles leave the walls of the vessels in the same manner, or whether they penetrate the epithelial plates themselves. To decide this question, he examined the mesentery, the tongue and the bladder of the *rana temporaria* and the *rana esculenta*, and found that generally the white corpuscles leave the vessels by means of stigmata. The irritation of the organs was caused in different ways. Thus, the mesentery was exposed for a few hours to the atmosphere, while the tongue was injured and the bladder was injected by a weak solution of nitrate of silver. Infusions of cinnabar into the blood were also made with the view to colour the white blood-corpuscles. Twenty-four hours after the operation the animals were bled to death, and then the circulatory system was injected from the aortic bulb by a solution of nitrate of silver from $\frac{1}{3000}$ to $\frac{1}{3000}$. The examination of the preparation took place immediately in a three-fourths per cent. solution of chloride of soda, or after colouring with carmine in glycerine.

The white corpuscles could be observed in numerous phases of emigration. The transmigration always took place at certain points (stigmata). Had the process of emigration been stopped in time, the emigrated blood-corpuscles were to be seen in the sheath of vessels, or at a short distance from this. The form of the white corpuscles is elongated in the state of escape. Many of them have prolongations, fixed in the stigmata. Sometimes numbers of white corpuscles accumulate on the outer wall of the vessels, so that the lining epithelial membrane appears to be separated from the sheath of the vessel. The author never observed that the plates themselves were penetrated by the white corpuscles.

As a result of the disturbance in circulation, combined with the emigration of white blood-corpuscles, it was found that the borders of the cells forming the vessels are not so distinct as in a normal state. Between them are a greater number of dark spots (stigmata) than in a normal state, generally not so large that red blood-corpuscles could pass them. Dr. Arnold observed that granules of cinnabar, as well as colloid substances, may leave the vessels through the stigmata. The cause of the easier penetrability of the vessels may be found in an alteration of the condition of the cement connecting their cells.

A great number of the emigrated white corpuscles are carried off by the lymph-vessels. The author thinks that with the disturbance in circulation during emigration there are connected currents directed towards the walls of the vessels, and that they are of different strength.

EBERTH ON BACTERIA IN PERSPIRATION.—Dr. Eberth, of Zürich (Virchow's *Archiv*, vol. lxiii.) found, by aid of the microscope, in the sweat from the face, some corpuscles which he considered as bacteria. This view became confirmed when he examined the axilla, breast, and inner side of the thigh of several persons in a state of perspiration. The sweat of these parts contained nearly always enormous numbers of bacteria. In most cases they originated from minute bodies found upon the hairs in the mentioned regions, forming little nodules on them, and giving them a greyish or a brick colour.

They were recognised by the author as accumulations of micrococci. They may rapidly increase in number, are smaller than the diphtherial micrococci, and are nearly indifferent to reagents (concentrated acids, alkalies, alcohol, ether, chloroform). Iodine colours them yellow. The vegetation of bacteria on the hairs may be observed in cases where they are changed already, beginning in places which have clefts between their cells. The vegetation occupies large spaces, especially in the direction of the longest diameter of the hair. Dr. Eberth observed a mycelium and micrococci, and thinks that the latter are the fruits of the former. Other investigators observed coloured sweat, red and blue, which contained micrococci. It was difficult to decide in these cases if the colouring matter was adherent to the micrococci, or if it was a product of the vegetation.

RECENT PAPERS.

- Experiments on the Action of Intravenous Injections of Chloral on the Vaso-Motor Nerves. By Professor Héger and Dr. Stiénon. (*Annales de la Société de Médecine de Gand*, June.)
- Odor Mortis: The Death Smell. By Dr. Isham. (*The Clinic*, September 4.)
- On Physico-Dynamic Palpitations. By Professor G. Sée. (*France Médicale*, October 2, 1875.)
- On Articular Cartilage. By Dr. Ogston. (*Journal of Anatomy and Physiology*, October, 1875.)
- Action of Jaborandi on the Heart. By J. R. Langley, B.A. (*Ibid.*)
- The Action of Salicylic Acid on the Urine. By Dr. R. Fleischer. (*Berliner Klinische Wochenschrift*, September 27 and October 4.)
- Researches on the Alkaloids of *Amanita Muscaria*. By Dr. E. Harnack. (*Archiv für Exper. Pathol. und Pharmacologie*, Band IV. Heft III.)
- On the Action of Toxiresin and Digitaliresin on the Animal Organism. By Dr. H. Perrier. (*Ibid.*)
- Observations on the Relations of the Opening of the Eustachian Tube, and on the Action of the Muscles of the Pharynx. By Dr. C. Michel. (*Berliner Klin. Wochenschrift*, October 11.)
- Remarkable Persistence of Cardiac Action after Cessation of Respirations. By Dr. R. Stewart. (*Philadelphia Medical Times*, September 25.)
- On the Influence of the diminished Supply of Oxygen to the Tissues, on the Destruction of Albumen in the Animal Body. By Dr. A. Fränkel. (*Centralblatt für die Medicinischen Wissenschaften*, October 9.)
- On the Development of the Central Nervous System. By Dr. P. Flechsig. (*Centralblatt für die Medicin. Wissensch.*, September 11.)

PATHOLOGY.

BOLLING ON A CASE OF EMBOLISM AND DISINTEGRATED THROMBUS OF THE PORTAL SYSTEM.—G. Bolling (*Hygiea*, 1874; *Nordiskt Medicin. Arkiv*, Band vii. Heft 2), relates the case of a book-seller, aged thirty-seven, who, having previously had good health, was suddenly attacked in June, 1874, with vomiting and fever. The vomiting soon ceased, and was followed by constipation. On July 5 and 6 he had severe rigors, after which icterus set in. Examination of the patient on the latter of these days showed severe fever, and distension of the abdomen, in which was felt a soft tumour extending to the umbilicus, and continuous with the liver; the spleen was enlarged; the urine contained biliary colouring matter and acids. On the 7th, in the afternoon, he suddenly had violent pains in the abdomen, and diarrhoea set in; this was followed by symptoms of severe peritonitis, and he died on the morning of the 10th.

At the necropsy, the left lobe of the liver was found to be much enlarged, extending down to the umbilicus. The free border of the lobe was adherent to the transverse colon; beneath the lobe was a large encapsuled cavity filled with puriform fluid. Similar fluid escaped from two abscesses lying outside the left lobe of the liver, the peritoneal covering of which had burst. Besides this, the left lobe of the liver was filled with abscesses containing thick yellow puriform matter. Dried cheesy matter was also found. Large and small patches with a yellow centre and greenish circumference were also seen in the parenchyma of the liver. All the portal vessels in the left lobe were filled with a yellow thick matter; and in the principal branches of the portal vein was a semisolid mass, which extended into the smaller branches. The omentum was adherent by false membranes in the region of the cæcum, and in one place was rolled up into a cord two fingers thick, which at the appendix vermiformis contained an abscess with green-yellow offensive pus. The veins in the cord contained partly puriform matter, partly firm fibrin. The spleen was considerably enlarged, with dark-red loose pulp.

Bolling considers that the illness began with perityphlitis and circumscribed peritonitis, which was followed by adhesion of the omentum and formation of unhealthy pus, thrombosis, and breaking down of thrombi in the omentum, and embolism of the left lobe of the liver. The rigors he connects with the incipient breaking down of the thrombi, and the formation of multiple abscesses in the liver. The enlargement of the spleen he explains by blood-poisoning, arising from absorption of the constituents of the bile into the blood or from septicæmic infection.

LEVERTIN AND AXEL KEY ON A CASE OF PERFORATING ULCER OF THE DUODENUM.—In this case, recorded in the *Hygiea* for 1874 (*Nordiskt Medicin. Arkiv*, vol. vii.), the patient, a woman aged fifty-one years, and very fat, suffered from uterine disease, attended with periodical paroxysms of severe pain in the hypogastrium; but otherwise her general health was good. After a slight attack of pain in the abdomen and constipation, she was suddenly seized with symptoms of peritonitis, and died in forty hours.

At the necropsy, diffuse peritonitis was found; and in the anterior wall of the duodenum, about a quarter of an inch from the pylorus, was a funnel-shaped ulcer, perfectly resembling a perforating ulcer of the stomach. The peritoneum around the perforation was loosely adherent to the under surface of the liver. From the borders of the ulcer two branches proceeded forwards and backwards, so as to nearly surround the intestine as with a ring. The anterior one appeared to be nearly healed, the edges of the mucous membrane being drawn closely together; the posterior one was undergoing cicatrization in some parts, and in another part there was a smaller round loss of substance in the mucous membrane, the base of the ulcer being formed of the thickened and hardened submucous tissue, a small portion of which was loose and perforated as far as the muscular tissue, as if there were a new formation of ulcer in an imperfectly cicatrised one. In the uterus there were found a number of intraparietal myomata, varying in size from a pea to a walnut; they partly projected into the uterine cavity.

Key regards it worthy of special remark that in

this case the unusually large and extensive duodenal ulcer, which was probably of long standing, and apparently in course of healing when fresh ulceration set in, ran its course without any symptoms until perforation and its results occurred. The remarkable fatness of the patient indicated that the ulceration had not disturbed nutrition.

FRONMÜLLER ON A CASE OF TRANSPOSITION OF THE VISCERA.—A case of transposition of the viscera is recorded by Dr. Fronmüller, of Fürth, in Betz's *Memorabilien*, Jahrgang xx. The subject was a woman aged sixty-two, who died of disease of the heart. The following appearances were found at the necropsy.

The right lung had only two, the left three lobes. The heart reached far to the right of the sternum; the apex lay near the sixth and seventh right ribs, and the base behind the left border of the sternum, near the fourth and fifth ribs. The pulmonary artery crossed the aorta from left to right, and from below upwards. The auricles and ventricles were inverted. The large lobe of the liver, with the gall-bladder, lay on the left hypochondrium; the small lobe and the spleen to the right. The stomach was inverted; the cardiac orifice lay to the right of the spinal column, and the pylorus to the left; the duodenum was also inverted. The head of the pancreas lay to the left, and the tail to the right. The cæcum and vermiform appendix were found in the left lumbar region; the ascending colon was situated on the left, and the descending colon and rectum on the right side.

Dr. Fronmüller remarks that this was the second case of inversion of the viscera that he had met with in a practice of forty-one years. The case is interesting, as the individual had lived sixty-two years without any inconvenience from the anomaly of which she was the subject. She used her left hand in preference to the right in grasping objects. The other case was observed by Dr. Fronmüller, in 1858, and described at the time in the *Memorabilien*. The subject was at that time seventeen years old, and is now a strong and healthy man. Dr. Fronmüller exhibited him at a meeting of the medical profession of Middle Franconia, and at the hospital in Erlangen, where the diagnosis of inversion was confirmed. This man is right-handed. A. HENRY, M.D.

LAMÉTRIE ON PRIMARY CANCER OF THE GALL-BLADDER.—The *Journal des Connaissances Médicales* for July 30, 1875 (no. 14, année 43) remarks that primary cancer of the gall-bladder has attracted a good deal of attention since Messrs. Durand-Fardel and Cruveilhier first drew attention to the subject.* Secondary deposits of cancer in the liver are common enough. Primary malignant disease of the liver is, however, rare, though formerly regarded as common. We now know that, when nodules of cancer are found in the liver, the primary disease must generally be sought in some other part of the digestive tube, such as the pylorus, the lower end of the rectum, etc. We must not, however, regard primary cancer of the liver as a mere myth, since, although rare, there are carefully recorded cases of it, which are above suspicion. As regards cancer of

* See Villard [*Mouvement Médical*, 1870]; the article 'Biliaires' [Voies], by MM. Barth and Besnier in the *Dictionnaire Encyclopédique*; and M. Bertrand's *Thesis* [Paris, 1870], founded on work done in the laboratory of MM. Cornil and Ranvier.

the gall-bladder, one of its chief clinical and anatomical features is, that in nine-tenths of the cases it is associated with gall-stones, and with retention of bile. A case recently occurring in the wards of Dr. H. Henrot, at the Hôtel-Dieu Hospital at Reims, has many points of interest. It will be found reported at considerable length by M. Chatelain in Bulletin 13 of the Société Médicale de Reims. The patient, a woman aged forty-nine years, had never before suffered from any serious illness. In May, 1873, she became weaker, and lost appetite. In September and October she had feelings of oppression at the stomach, nausea, and vomiting. She lost flesh, had a vague feeling of pain confined to the epigastrium, and was jaundiced. On examining the abdomen, the epigastric region appeared to bulge more on the right than on the left. Palpation gave the impression of a hard and painful 'tumour' in this situation. Percussion signs were negative. Tongue whitish; anorexia; constipation. After December 14, 1873, her temperature was noted. It rose to 104.2° Fahr. that night. During the next few days she suffered intense pain in the right hypochondriac region. A violent rigor seized her suddenly. Her temperature rose to 105.8° Fahr., and her pulse to 110 (December 18); a profuse perspiration ended this crisis. Next day her pulse was 84. The sweatings had ceased, and two days afterwards the temperature had fallen to 97.8° Fahr. The left lobe of the liver, though not uneven, was manifestly greatly enlarged. On and after the 23rd, there were fresh rigors, with alternate sweatings and high temperatures. On the 28th her temperature was 106.5 Fahr., and from this time she was never quite free from a mild delirium. On the 30th there was more evident bulging of the right hypochondrium. It was clear that the tumour was enlarging. In the mammillary line the liver-dulness was nine inches in depth. The upper border of this dulness was nearly an inch higher than on the 26th. During January the still somewhat delirious patient vomited her food, with glairy mucus; diarrhoea followed, and her stools became extremely foetid, and were passed involuntarily. On the 18th she became comatose and died. At the necropsy, the whole liver was enlarged, measuring thirteen inches transversely by nine vertically. Near the suspensory ligament the left lobe had a small patch of softening, the capsule of Glisson and the peritoneum forming a little pocket here as large as a nut, containing some greenish purulent fluid. Otherwise the upper surface was healthy. The inferior surface of the liver was almost all occupied by a milk-white mass, of cauliflower-like aspect, rather firm, and on section dead white, and furnishing, when scraped, a colourless fluid. The gall-bladder and the hepatic, cystic, and common bile-ducts were all comprised within this mass. Microscopic examination showed it to consist of encephaloid cancer. The pylorus was pressed downwards, and the first and second portions of the duodenum had formed a deep channel in this mass of cancer, which had begun to invade the pancreas. Except at the pylorus, the stomach was quite free from disease, but there it was not only attached to but slightly implicated in the tumour. On the posterior wall of the descending portion of the duodenum there was an irregular opening which admitted the finger, which then found itself in a large and tortuous (*anfractuosa*) cavity in the midst of the cancerous mass, filled with a thick greenish-black, and somewhat viscid fluid. On opening this cavity, a diverticulum

was seen, containing from forty-five to fifty gall-stones, composed of nearly pure cholesterol. Here the tumour itself was somewhat reticulated, and contained some small calculi embedded in it. The bile-ducts in the liver, especially in the left lobe, were alternately dilated and contracted, presenting a beaded or rosary-like appearance. There was a little ascites. Reviewing the case, we have, first jaundice, beginning at the age of forty-five, and persisting; next fever, with enlargement of the right lobe of the liver; then a tumour. Diagnosis was difficult; it might be abscess originating in gall-stones. The presence of fever seemed at first to negative encephaloid cancer. It certainly is rare in such cases. Dr. Henrot thought the rigors due to the retention of bile. He also attributed the small calculi embedded in the mass to this retention. In many cases retention of bile (of which the rigors, the high fever, and the delirium, were signs), is due to the smaller bile-ducts. In this case the larger passages were invaded by the cancer, and caused the retention.

W. BATHURST WOODMAN, M.D.

RIEMER ON A CASE OF ARGYRIA.—B. Riemer (*Archiv der Heilkunde*, xvi. 296, and *Centralblatt für die Medicin. Wissenschaften*, no. 41, 1875) describes a case of this affection in a patient suffering from tabes. The use of the nitrate of silver in the form of pill was continued for about two years; the whole quantity swallowed was 43 grammes, corresponding to 21.6 grammes of metallic silver. The first traces of the discoloration of the skin were observed after the drug had been taken for about a year. The patient died of pulmonary phthisis. The *post mortem* appearances were the following.

Beyond the skin, which was the organ most fully investigated, there was a greyish blue varying to dark blue colouration of the lining membrane of the aorta, of the choroid plexus, of the smallest arteries of the stomach and intestines, of the connective tissue of the intestinal mucous membrane, and of the muscular coat of the intestinal tract, in the interarcinous connective tissue of the liver (slight cirrhosis); in the capsule, trabeculae, and vessels of the spleen; in the peritoneum, in the vascular loops of the glomeruli, the membrana propria of the urinary tubules, the capsule; and the connective tissue of the renal papillae; in the albuginea of the testicle and the membrana propria of the seminal tubules; in the mesenteric glands; in the intermuscular connective tissue of the heart, and in the thickened endocardium; in the dura mater; and lastly, in the perichondrium and periosteum of various parts of the body. Everywhere the pigment was generally accumulated in a finely granular, seldom in a linear or diffuse form, in the ground-substance of the connective tissue, in the homogeneous membranes, and was not combined with the cells nor with the 'cement-substance' between the cells. In the skin, specially of the face, it was the upper layers of the corium, of which the connective tissue, non-striped muscular fibres, and glands were pigmented. The epithelium of the rete mucosum on the one hand, and the subcutaneous fat on the other, formed the sharply defined limits of the silver impregnation, which here also was specially pronounced in the basement membrane of the sweat and sebaceous glands and of the hair-bulbs, whilst the epithelium of the glands and their excretory ducts remained free. The author, from the difference in the silver colouring, distinguishes two sorts of tubular glands in the palm of the hand.

and sole of the foot. The one, the narrow non-coloured sort, with alternating epithelium, he regards as physiologically equivalent to the excretory tube; whilst the wide part of the gland filled with epithelium, strongly impregnated with silver, he regards as the proper secreting part of the gland. A pathological disturbance of function is not produced by the pigmentation; but Riemer believes, from an often observed folding in the sweat-gland tube, and a dilatation of the hair-sheath, corresponding to the attachment of the muscoli arrectores pilorum, that there is a diminution in the elasticity, whose origin is to be ascribed as well to the presence of the pigment as to the cutaneous atrophy. The nervous structures of the skin do not seem to bear any relation to the argyria.

The question as to how the silver colouration arises, the author answers after the mechanical theory of Virchow.

The pigment is taken up as such, *i.e.*, as reduced silver, from the intestinal canal, is partly deposited in the lymphatics, and partly goes into the blood, whence it passes through the vascular walls into the tissues. In favour of this theory, and against that one which assumes that the silver circulates in the blood as soluble silver albuminate, and which ascribes the reduction to the tissues, there are the following facts. 1. The colouring matter is not combined with any cell, in fact is not united to any distinct tissue element. 2. It is most abundant where the strongest juice-currents exist (sweat-glands). 3. A higher degree of density of the tissues, specially in the membranæ propriæ and the cutaneous muscles, with the difficulty of the movement of the tissue-juices, produce a deposition of the colouring matter. 4. The wall of the larger vessels is pigmented, whilst the physiologically equivalent lining coat of the capillaries, which offers no important resistance to the particles of silver, is uncoloured.

WM. STIRLING, D.Sc., M.D.

FOTHERGILL ON ATHEROMA.—In the *Philadelphia Medical Times* for August 7, is an article on atheroma by Dr. Milner Fothergill. He describes it as a parenchymatous inflammation of the arterial walls, a development of connective tissue under the tunica intima. It manifests itself in two forms: in the shape of patches at certain points, and in a more general form. The localised points are less interesting than the general form, except in so far as they point to strain as the great cause of this growth of connective tissue. The most striking illustration of the causal relationship of strain to atheroma is to be found in the circumstances under which atheroma is found in the lesser or pulmonic circulation. It is only when the blood-pressure in the pulmonary artery is raised by a lesion in the mitral valve, or by induration of the lung, when there is right-side hypertrophy induced, that this change is found in extrauterine life. Still this change is but a modification of growth; it is normal nutrition run riot, rather than a morbid process *per se*. For under similar circumstances the pulmonary artery and its valves have been found strengthened and enlarged, without anything that could be called atheroma ensuing. General atheroma is most commonly found in the subjects of chronic Bright's disease, where a high blood-pressure is maintained persistently for years. It is also a consequence of the over-distension of the arteries by the contraction of the enlarged and hypertrophied

left ventricle in aortic regurgitation. Atheroma is very commonly found along with aortic valvulitis; as the over-distension which causes the atheroma closes the aortic valves violently, and so sets up parenchymatous inflammation, or excessive tissue-growth there. Wherever the position of arteries exposes them to great strain, there atheroma is most pronounced. Thus the coronary vessels at the base of the aortic column are very commonly markedly more atheromatous than other parts of the arterial system, because they are subjected to the full force of the aortic recoil. The atheromatous change shows itself in its general form as minute rice-like bodies under the tunica intima, and in time the whole arterial wall is thickened and feels like leather. At other times it shows itself in circumscribed patches, forming swellings under the tunica intima. This swelling consists of connective tissue corpuscles. This course of atheroma is varied and instructive. These patches may become infiltrated with earthy salts, and ultimately form calcareous plates; or they may rapidly degenerate, and become like purée of peas, consisting of fatty corpuscles, *débris*, and cholesterine scales. These may wash away ultimately in the blood-current, and leave the atheromatous ulcer behind. In the more general form, this tissue change may become calcareous, and the arteries feel like so many clay-pipe stems; or a merely general hardening with some elongation ensues; and in some cases the thickened arteries are soft and friable. According to the progress of the atheromatous change is the prognosis. Its progress is widely different in certain people. In some it is a slow process, almost normal to age; in others, it readily undergoes degenerative changes. Atheroma is most apt to take on degenerative change in two classes of persons—the syphilitic, and the habitual drunkard. The marked atheromatous changes seen in the arteries of comparatively young persons almost always point to syphilis. It has been too much the rule to regard atheroma as being beyond the pale of therapeutic reach. Much, however, may be done to avert or delay its occurrence. In the syphilitic, specific treatment is desirable. In the gouty, the choice of such food as shall not lead to much nitrogenised waste—the cause of the sustained high blood-pressure—is to be inculcated. Parkes found a non-nitrogenised diet to lead to a distinctly lowered blood-pressure. Here potash, colchicum, and buchu are indicated, to get rid of the excess of azotised waste.

RECENT PAPERS.

- A Case of Bifurcated Foot with Eleven Toes. (*Boston Medical and Surgical Journal*, September 9, 1875.)
- On the Pyogenic Agent. By M. Chauveau. (*Le Mouvement Médical*, September 25.)
- A Note on a Case of Black Colouring of the Tongue. By Dr. Féréol. (*L'Union Médicale*, September 14.)
- On the Pathogeny of the Internal Knee. By M. Leon Tripiér. (*France Médicale*, September 29.)
- Note of a Case of Hydrophobia. By Thomas Law Webb. (*Birmingham Medical Review*, October, 1875.)
- Note on Ectrodactylia. By Dr. Nicaise. (*Gazette Médicale de Paris*, October 2.)
- Researches on the Influence of Temperature on Bacterial Vegetation. By L. Bucholz. (*Archiv für Exper. Pathol. und Pharmacologie*, Band IV. Heft III.)
- On the Pathogenic Schistomycetes. By Professor E. Klebs. (*Ibid.*)
- Researches on the Pathological Anatomy of the Nervous Centres in Cases of Delirium Tremens. (*L'Imparziale*, September 17.)
- Pathological Anatomy of Progressive Paralysis. By Dr. Livi. (*Revista Sperimentale di Freniatria*, 1875.)

MEDICINE.

DA COSTA ON RESPIRATORY PERCUSSION.—

Under this title, Dr. Da Costa proposes (in a paper in the *American Journal of the Medical Sciences* for July, 1875) to class the differences developed during a full and a forced expiration. There is a decided difference in the note found under either circumstances compared with the sound elicited during quiet breathing. As regard inspiration, this is more readily detected than as regards expiration; and it is also much easier for the patient, as well as more generally applicable. A large series of observations were first made on healthy men, with the following results. The resonance is increased at the apex; and the same holds good from the border of the fourth rib downwards. This is more distinct upon the right than the left side. A forced expiration lessens resonance. The quality of the note is not much affected in any case. The same results were found in women, making allowances for their anatomical differences. In disease, respiratory percussion is valuable. In bronchitis it is useful; and if the structures of the lungs be implicated, the alteration of sound on full inspiration is not found; if the bronchitis be uncomplicated, it is as marked as in the healthy chest. In lobar pneumonia the effects of full inspiration on the percussion-note are not found until resolution is setting in, and this may show itself in advance even of returning crepitation. In chronic pneumonia this plan of examination enables the percussor to determine how far the lung structure is pervious to air, and often will tell of commencing improvement. It is also useful under the following circumstances. 'We see at times puzzling cases of persons who, with organic valvular disease, have been spitting blood, are perhaps born of consumptive families, and have suspicious physical signs at the apex of a lung, have impaired breathing, somewhat prolonged expiration, râles, slight percussion dulness. Is there, or is there not, tubercular disease? Very generally not. And we find the apparent dulness, due to heavy local congestion of the lung, with possibly slight tissue consolidation, wholly, or at least very largely disappearing under full held inspiration, far more so than if, with the same physical signs, there had been tubercular deposition.' In determining the amount of lung-implication in pleurisy it is valuable. Over the seat of a marked pleuritic effusion, actually no change takes place in the flat percussion-note. At the very edge, however, percussion, practised under held inspiration, strikingly clears the sound, or rather, brings out the contrast between pulmonary resonance above and the abrupt line of dulness. Of still greater value is respiratory percussion in those instances of pleuritic effusion in which we have blowing respiration at the back of the lung, and in which the question of co-existing pneumonia arises. If the blowing respiration be due to compression or consolidation, and not to hepatisation, decided clearness takes the place of dulness. The tympanitic note of the apex in pleuritic effusion is lost by full held inspiration. In phthisis, respiratory percussion is very useful. In the very early stages of tubercular deposit, when prolonged expiration is just beginning with enfeeblement of inspiration, and ordinary percussion shows but little or a doubtful difference between the two, respiratory percussion may help us greatly by making the difference more marked. When the deposit is

more decided, it will often be a means of gauging the amount of disease in the implicated portion of the lung. When in a case of phthisis we find the dulness on percussion no longer modified by forced inspiration, we have a certain test of the malady having progressed. When cavities have formed, the information furnished by percussion is most interesting. The percussion-note in full inspiration alters to dulness, and this whether we have that mixture of dull and tympanic sound encountered in percussing over cavities, or the cracked-pot sound, or the amphoric note. Some remnant of the peculiarity of the original sound may persist; but the character of the bulk of the sound is altered. It has become dull, and there is more resistance, and usually a higher pitch. Then follow several illustrative cases. The more rigid walls of bronchial dilatation are not thus modified. In pneumothorax, Dr. Da Costa thinks that respiratory dulness will often determine whether the opening into the pleural sac is closed or not. In pulmonary emphysema it helps to establish the disease, and to form an idea of its extent. In marked emphysema the excessively clear or vesiculo-tympanic note is unchanged, and the small amount of difference in the note in ordinary and full held inspiration is the measure of the amount of emphysema.

J. MILNER FOTHERGILL, M.D

GUTTMANN ON DISEASE OF THE SYMPATHETIC NERVE IN THE NECK.—

In the *Berliner Klinische Wochenschrift* for August 9, 1875, Dr. Paul Guttmann relates a case of disease of the cervical sympathetic nerve. The patient, a man aged forty-two, up to the last two years had enjoyed good health, with the exception of some slight pulmonary disorder. For about two years he had noticed that, except when he made some excessive bodily exertion, he perspired more freely on the left side of his face than he did on the right. The parts more particularly affected were the forehead, the nose, the chin, the cheek, and the ear. If he exerted himself, this condition spread over the scalp, covering the parietal and occipital parts of the head. The median line was an invariable boundary to this condition. The sweat, which had an acid reaction, stood in large drops over these parts.

When this excessive sweating took place, which was the case on his making even slight exertion, the parts affected became redder, and the temperature in the meatus auditorius was found to be from $\frac{2}{10}$ ths to $\frac{3}{10}$ ths of a degree Centigrade ($\frac{1}{4}$ th to $\frac{1}{2}$ th deg. Fahr.) higher on the left than on the right side. Nutrition and tactile sensibility were found to be equal on both sides. In rest, these differences between the two sides were found not to exist. Still further differences between the eyes were found. The pupil on the left side was found to be larger than that on the right, and the space between the lids on the left side was also larger, there being a considerable amount of exophthalmus. The left conjunctiva was also found to be more injected than the right. These differences were constant, whether during rest or exertion. During the thermo-vascular disturbances mentioned above, the lachrymal secretion was considerably increased on the left side. The sight and power of accommodation of both eyes was normal. With the exception of these abnormalities, and a somewhat phthisical condition of the lungs there was nothing else to be observed in the patient. Nothing could be discovered from external examination indicating that there was any pressure on the

sympathetic, but the nerve on the left side was more sensitive to pressure than on the right.

Experiments on animals in which the nerve has been divided, have shown that such division of the nerve causes contraction of the pupil, and narrowing of the space between the lids with retraction of the ball of the eye. The conditions observed in the case were very similar to those observed in animals in which the cut end of the nerve has been excited electrically. This would prove that the state of the patient's eye was owing to a state of irritation of the nerve. The disturbance of the vaso-motor nerves in the patient as shown by the blushing, sweating, etc., in the opinion of the writer, tends to prove that the centres of the vaso-motor nerves affected, and of the nerves supplying the pupil are placed close together, and in this case were both affected by the same irritation.

W. HENRY KESTEVEN.

CIANCIOSI ON A CASE OF SUPPURATIVE PNEUMONIA SUCCESSFULLY TREATED BY CARBOLIC ACID AND ESSENTIAL OIL OF TURPENTINE.—Dr. Angelo Ciansiosi reports in the *Indipendente* (no. 4, 1875), a case of traumatic pneumonia following a stab in the fifth right intercostal space. At the ninth month the wound was cicatrising, but pus gradually collected in the pleural cavity, and the wound re-opened to give exit to it. Towards the middle of February 1872 pus began to escape continually, and the patient also had difficult respiration and cough, accompanied by abundant purulent expectoration, fever with slight exacerbations in the evening, diarrhoea, and progressive emaciation. In April of the same year Dr. Ciansiosi saw the patient for the first time, and, on exploring the wound, from which issued pus mixed with bubbles of air, ascertained that the lung was penetrated, and arrived at the diagnosis of suppurative pneumonia with pyopneumo-thorax, consecutive or traumatic pneumonia, with effusion of blood in the right pleural cavity. He believed that the disease had become aggravated in consequence of the bodily exertion undergone by the patient when he left hospital to return home, imagining himself to be cured.

The diarrhoea was subdued by decoction of calumba root, and the cough alleviated by morphia. Dr. Ciansiosi then gave tonics, and injected into the pleura a solution of fifty centigrammes of carbolic acid in 200 grammes of infusion of cinchona. In about a month there was marked improvement; the febrile state ceased, the expectoration diminished, and less pus escaped from the wound. Oil of turpentine was also given, both by inhalation and internally; also tannic and benzoic acids. Complete recovery took place.

A. HENRY, M.D.

LYONS ON THE SIGNIFICANCE OF INVOLUNTARY EVACUATION IN APPARENT HEALTH.—The subjoined observations are from a lecture in the *Irish Hospital Gazette*, by Dr. Lyons.

I always attach great importance to the passing involuntarily of urine and faeces after the restoration of consciousness, and for these reasons. It is only to be accounted for by some extreme depression exercised on the pneumogastric and sympathetic nerves, and that influence can only be exercised by some very limited cause acting at the base of the brain.

The passage of urine and faeces involuntarily I have known to present itself as one of the earliest symptoms in cases of slowly forming tumours at the base of the brain. I well remember one very pain-

ful, lamentable, and, indeed, tragic case, in which this was the first noticeable symptom in what proved to be a prolonged history of a case of slowly forming tumour at the base of the brain. A gentleman, who was engaged to be married, was standing up to dance in a drawing-room, when the sphincters gave way, and the involuntary passage of faeces took place, and, singular to say, he was quite unconscious of it himself. Friends standing by were shocked, and hurried him from the room. He expressed the greatest astonishment when told what had occurred. Nobody seemed able to make out what was the matter. Some thought he must have been tipsy, but it was no such thing, for he was a man of singularly abstemious habits. Curious to say, he recovered voluntary power over the sphincters, and some time elapsed before this accident occurred again. In my experience, this symptom, which is often overlooked, is one of the earliest as well as most dangerous of those occurring in slowly forming central disease of the brain. I remember another case, in the person of a member of our profession, with whom I was driving to a consultation, when the same unpleasant accident occurred. He seemed perfectly unconscious of it, and had at the time no cerebral disturbance of any kind. In about two years subsequently he died of slowly forming centric disease of the brain. In the other case there was occasional recurrence of this symptom, and then the diagnosis of deeply seated tumour in the brain was made. He then was confined to bed; paralysis slowly forming ensued, and he died at the end of two and a half years from the first incident in the ball room. On *post mortem* examination, a tumour about the size of a small walnut was found lying at the base of the brain, projecting upon the pons, pressing a little upon it, but not destroying its substance. There is no doubt that it was just at the very incipient condition of this tumour that the accident occurred, from partial irritation at the origin of the pneumogastric nerves.

BIGELOW ON HYPERIDROSIS CURED BY THE LOCAL APPLICATION OF DIACHYLON PLASTER.—Dr. J. M. Bigelow (*New York Medical Journal*, June, 1875) reports a very obstinate case of sweating of the feet that had baffled all ordinary treatment, in which a speedy cure was effected by the local application of diachylon plaster. Putting the patient in bed, he applied the plaster as follows: After cutting it in strips of convenient width, he twisted them about each toe separately, and also applied them to the interdigital spaces, completely enveloping the whole foot, so that every portion of the sole, dorsum and toes of the feet was in close and immediate contact with the plaster. These strips were removed each morning, the feet carefully and thoroughly wiped with dry, heated flannel, and new plaster strips applied. For thirteen days this treatment was continued, when the plasters were removed, and the feet presented a healthy, normal appearance, free from the troublesome hyperidrosis.

RECENT PAPERS.

- On the Cardiac Manifestations of Typhoid Fever. By M. G. Hayem. (*Progress Medical*, September 18.)
- Report of the Observations made in Epileptic Cases at the Salpêtrière Hospital. By M. Bourneville. (*Progress Medical*, September 18.)
- On Secondary Rheumatism, and Genital Arthropathies in particular. By Dr. Henry Huchard. (*L'Union Médicale*, September 25.)

- On True Nervous Palpitations. By Professor Sée. (*France Médicale*, September 22.)
- Treatment of Cerebral Rheumatism by Cold Baths: Cure. By Dr. Colrat. (*Lyon Medical*, September 26.)
- Two Remarkable Cases of Membranous Croup. By Dr. Maguigan. (*Philadelphia Medical Times*, September 4.)
- An unprecedentedly High Temperature during a Congestive Attack in General Paralysis. By Dr. T. S. Clouston. (*Journal of Mental Science*, October, 1875.)
- Treatment of Pulmonary Phthisis. By Professor Béhier. (*Bulletin Général de Thérapeutique*, September 15.)
- Hæmaturia. By Dr. Choate. (*Boston Medical and Surgical Journal*, September 16.)
- On Relapsing Erysipelas. By Dr. Morbien. (*L'Union Médicale*, September 18.)
- Icterus consecutive on the Obliteration of the Ductus Chole-dochus, confined by the Kidney: Death and Necropsy. (*La France Médicale*, September 29.)
- Hysteria and Catalepsy (the Cataleptic of the Cochin Hos-pital). By Paul Berdinel. (*Archives Générales de Méde-cine*, October, 1875.)
- The Examination of the Pulse. By Dr. Sawyer. (*Birming-ham Medical Review*, October, 1875.)
- On the Respiration of Compressed and Rarefied Air in certain Lung and Heart Diseases. By Dr. R. Lépine. (*Gazette Médicale de Paris*, October 2.)
- Notes on Gastric Conditions and Cholera Nostras. By Dr. V. Audhoin. (*Gazette Hebdomadaire*, September 10.)
- Case of Pyæmia after Pneumonia: Recovery. By Dr. H. Kuessner. (*Berliner Klinische Wochenschrift*, Sept. 13.)
- Abscess in the Right Anterior Lobe of the Brain. By Dr. Jambasch. (*Ibid.*)
- A Case of New Growth in the Cerebellum. By Dr. Winter. (*Ibid.*)
- Aneurism of the Right Arteria Fossæ Sylvii, with Hæmor-rhage in the Right Frontal and Temporal Lobes. By Dr. P. Samt. (*Ibid.*, October 4.)
- Tumour of the Left Anterior Central Convolution. By Dr. Samt. (*Ibid.*)
- Brief Remarks on the Treatment of Diphtheria. By Dr. T. Schüler. (*Ibid.*)
- The Nature and Pathology of Beriberi. By Dr. Alvarenga. (*Gazette Médica de Lisboa*, June to September.)
- Rheumatic Tetanus treated successfully by Protracted Cold Baths and the Continued Use of Chloral and Morphia. By Dr. F. Franzolini. (*Giornale Veneto di Scienze Me-diche*, August.)
- Case of Aneurism of the Thoracic Aorta. By Dr. Stefanini. (*Annali Universali di Medicina e Chirurgia*, July-August.)
- Notes on a Case of Ulcerating Endocarditis. By Dr. Alex-ander Coldstream. (*Edinburgh Medical Journal*, Octo-ber, 1875.)
- On the Palliative and Remedial Effects of Subcutaneous In-jection of Morphia in Chronic Bright's Disease. By R. Park. (*Practitioner*, October, 1875.)
- Diarrhoea: Its Varieties and Treatment. By J. Milner Fothergill, M.D. (*Ibid.*)
- Ectopia of the Right Kidney, with subsequent Peritonitis and Hepatic Accidents. (*Gazette des Hôpitaux*, October 2.)

SURGERY.

LEBOUCQ ON THE REPARATION OF FRAC-TURES.—Dr. H. Leboucq, in a short contribution to the *Annales et Bulletin de la Société de Médecine de Gand*, July, 1875, points out the following facts in connection with the structure of long bones, and the reparative process in these after fracture: 1. The spongy substance of bones presents a special archite-cture in relation to the function which each bone has to fulfil. 2. The deformities of a bone pro-ducing a modification in its statical conditions would also produce a modification in the architecture of the spongy substance. 3. In the special case of re-paration of a fracture, this phenomenon would be met with in parts beyond the seat of fracture, and would even extend to parts of the bone which on superficial examination might not appear to have undergone any modification. The modifications of

these parts are due to a change which has affected the whole bone. Dr. Leboucq thinks that one may, in describing the reparative process after fracture, distinguish two categories of phenomena. Those of the first phase tend to bring about union of the osseous fragments; they may be comprised in a general formula—proliferation of the osseous tissue and consequent formation of callus. This union takes place under abnormal conditions, the frac-tured bone being kept at perfect rest. When the function of the bone is renewed after consolidation, the second phase of the phenomena of reparation commences, having for its object the adaptation of the bone to its normal function. The statical modi-fications in the callus now take place. These are not always of the same nature, and cannot be ex-pressed by the denomination of absorption of callus. Though in some cases, as in simple fractures of the diaphyses of long bone in which consolidation has taken place without displacement, the callus may be totally absorbed in the course of a few years, in other cases, on the contrary, certain parts of the callus may acquire an ulterior development and form an integral part of the repaired bone. The statical modifications are not restricted to the tissue of the callus—that is to say, to the newly-formed bone—but extend to parts of the original osseous tissue more or less remote from the seat of injury. A de-scription is given of a right femur taken from the body of a man who died at the age of fifty years. This bone had been twice fractured, once, several years before death, at the upper part of the diaphy-sis, and again, six months before death, near the lower end of the bone. The union of the upper and older fracture, though firm, was very faulty, the fragments forming a marked angle with much over-riding and twisting. The head and neck of the femur were much depressed. Dr. Leboucq examined in a section of this fracture the arrangements of the series of curved lamellæ described by Meyer and Wolff as serving in the normal bone to strengthen the head and neck; and he found that, although the direction of the head and neck of the femur had been much altered, each of the three main series of lamellæ of the spongy tissue had maintained its proper position, or rather that this arrangement had been re-established in correspondence with the sur-face of application of the pressure of the trunk.

DOLBEAU ON THE OPERATIVE TREATMENT OF PSEUDARTHROSIS OF THE HUMERUS.—Professor Dolbeau, in a contribution to the *Bulletin Général de Thérapeutique*, July 15, 1875, assumes that in most of the cases of ununited fracture supposed to have been successfully treated by simple means, con-solidation had been merely retarded, and that there had been a coincidence of the union of the frag-ments, and the application of the remedial means. The fact is insisted upon that whenever the two op-posed extremities of the osseous fragments have become eburnated, the condition cannot be cured by such means of treatment as setons, injections, acupunc-ture, electric currents, etc., and no proceeding short of resection of the fragments can assure secondary consolidation, and consequently cure of the pseudar-throsis. This condition of eburnation is indicated by extreme mobility of the fragments, by long-standing of the pseudarthrosis, and by a sensation of crepitus obtained by rubbing over each other the two extren-ities of the broken bone. To sixteen cases of pseud-arthrosis of the humerus treated by resection and

suture, in eight of which the operation failed, M. Dolbeau adds a seventeenth from his own practice, in which a false joint in the humerus of a woman aged forty years was treated four years after the fracture, by resection of the eburnated ends of the fragments and by metallic suture. The operation was successful, and in a report sent to the author three years later it was stated that the fragments of the humerus were firmly united, that the movements of all the segments of the limb could be made with freedom, and that the nutrition of the parts below the seat of injury had been well maintained. In conclusion M. Dolbeau insists upon some essential points in the operative proceeding of applying a suture in cases of pseudarthrosis of the humerus. The incision through the soft parts should be extensive, but care be taken to avoid the important organs of the brachial region, especially the musculo-spiral nerve. The pseudarthrosis having been exposed, it should be laid freely open, so that each fragment may be made to protrude through the wound. In this proceeding the surgeon would do well, according to M. Dolbeau, to isolate the bone by stripping off the periosteum, not in order to preserve this membrane with regard to osseous reproduction, but simply that he may keep his knife close to bone, and so avoid wounding the musculo-spiral nerve, the position of which in cases of pseudarthrosis of the humerus is sometimes much altered. The section of the extremities of each fragment should be made very obliquely, in order that the surfaces of contact may be extensive, and that much shortening of the whole bone may be avoided. This stage of the operation is usually very difficult, and requires much care and consideration in its performance, as it is necessary that the axis of the arm and that of the fore-arm should remain as far as possible in their normal relations. The metallic wire should be passed through the whole thickness of the shaft of the bone, and not, as some surgeons think sufficient, through the anterior wall. M. Dolbeau prefers a multiplicity of sutures. The whole extremity should, before the removal of the patient to the ward, be rendered quite immovable by means of a plaster-of-Paris splint. The extraction of the metallic suture may be attended with much difficulty, and even require a second operation. In M. Dolbeau's case the suture, which was of silver wire, was broken in an attempt at extraction, and a considerable portion of it remained in the arm for more than a year. In order that this accident may be avoided it is recommended that iron wire be used, and that the number and direction of its turns be carefully noted at the time of the operation. W. JOHNSON SMITH.

BILLROTH ON TREATMENT OF RACHITIC DEFORMITIES.—Dr. Rahsohoff writes to *The Clinic* from Vienna :

When the German nosologists christened rachitis 'Englische Krankheit,' they could only have reflected upon the fact that the disease, although known to the patriarchs of the profession, was first only recognised and described by English authors in the first half of the seventeenth century. To-day, rickety processes are as widely disseminated through South Germany and Austria, as they are in England. The distribution of identical etiological moments being the same in both countries, the effects must manifestly be analogous. These are reflections into which the observer will fall, *volens volens*, when every third case presented at the Children's Dis-

pensary, or at the ambulatorium of Professor Billroth, is one of rachitis. The surgical treatment of rachitic deformities by Professor Billroth, and a very elaborate article upon this subject by his assistant, Dr. Gussenbauer, in the *Archiv für Klinische Chirurgie*, Band xviii., have induced me to make mention of this theme. Unfortunately, it occurs only too often, that these deformities, and especially those of the lower extremities, are too long neglected, or subjected to the maltreatment of an ill-suited orthopædic apparatus. A well-contrived apparatus can doubtless overcome a deformity which has not been rendered permanent by the sclerosis consequent upon the diseased process. Indeed, the earlier operative interference is instituted, the better the result must be, for, as Dr. Gussenbauer has clearly demonstrated, the longer certain ligaments are abnormally stretched by the peculiar gait incumbent on certain deformities, the less can a *restitutio ad integrum* be expected. An outward curvature of the tibia signifies a treading upon the outer border of the foot; and an abduction of the femur. The external lateral ligaments of the ankle and the knee-joint become stretched and elongated. 'The shrinking of the internal lateral ligaments appears to supervene when the increased and constant pressure upon the inner segments of the articulating surfaces of both joints has induced their atrophy (*Druckatrophie*).' Hence, in recent cases, the deformity can generally be overcome by gradually 'straightening' the limb of the narcotised patient (*Redressment*). Should the advanced sclerosis render this manipulation impracticable, the infraction or complete fracture of the bone, should be produced at the seat of greatest curvature. The limb is then straightened, and a plaster-of-Paris bandage applied. When the latter is removed in from two to four weeks, an *ad oculos* demonstration of the efficacy of this treatment is afforded.

In the article already referred to, Dr. Gussenbauer reports six cases of deformity of the legs in which the excessive induration of the bone thwarted all manual attempts and manipulations to fracture the same. In these cases, subcutaneous osteotomy was performed with the best results. On the inner side of the tibia, at the seat of its greatest curvature, an incision varying from one-half to three-fourths of an inch in length, is made through the soft parts, the periosteum also being divided. The inner wall of the bone is then divided with a chisel, the line of division being perpendicular to the axis of the bone. The splintering of the bone must be carefully avoided, for the healing by first intention would then be interfered with. (This is one of the objections to Langenbeck's operation of subcutaneous osteotomy, the bone-dust produced by the auger and saw causing suppuration.) The division of the inner wall accomplished, the tibia can easily be fractured, manual force sufficing to overcome the resistance. The after-treatment consists in the application of a plaster-of-Paris bandage fenestrated at a point corresponding to the seat of operation. Notwithstanding the assertion of Linhart, this operation, when properly performed, does not imperil the integrity of the fibula, for the latitude of motion allowed in the superior tibio-fibular articulation, suffices to permit the fibula to sweep the angle between its abnormal and its normal position. The necropsy of one of these cases which succumbed to variola, places this beyond doubt. Unfortunately, opportunity has not yet been afforded me to witness this operation for a deformity resulting

from the disease mentioned, although two cases of genu valgum were successfully operated upon according to this method during the present semester. In these cases, the tibia was fractured one inch below the tubercle, the deformity was reduced and the extremity retained in its proper position by a plaster-of-Paris bandage. A slight hæmorrhage into the subcutaneous cellular tissue or into the medullary cavity frequently results after the operation, and may even lead to suppuration and concomitant fever, both these, however, enjoying only a very short existence. It will be seen from this that the resection of a wedge-shaped piece of bone for the removal of a deformity can very often be dispensed with. Were these lines intended for other than American readers, they might contain more or less detailed accounts of the operations of Barton, Brainard, and Gross, operations which mark an era in the surgical treatment of deformities which, though compatible with life, make life a burden.

PARONA ON A CASE OF AVULSION OF THE FOREARM, ATTENDED WITH SEVERE HÆMORRHAGE.—Dr. Parona records this case in his *Rendiconto Biennale di Clinica Chirurgica*, to show that avulsion of limbs does not always occur without hæmorrhage.

A workman in a paper-mill, aged fifty-three, had his right forearm torn off in consequence of his hand being caught in the machinery. The accident was followed by hæmorrhage, which produced syncope. A compress was applied in the axilla, and the patient was taken to the hospital, where the brachial artery was tied; and on the next day amputation was performed near the head of the humerus. There was subsequently partial sloughing of the stump; but the result was successful, and the patient left the hospital cured two months after the accident.

A. HENRY, M.D.

RECENT PAPERS.

- Osteo-Periostitis of the Malleoli of the Left Leg, seeming to be consecutive on Arthritis. (*Gazette des Hôpitaux*, September 16.)
- Case of Kolpoplekisis. (*New Orleans Medical and Surgical Reporter*, September, 1875.)
- On the Thermic Galvanocautic Process. By Dr. Amussat, jun. (*Gazette Médicale de Paris*, September 25, 1875.)
- Serotal Phimosis: Remarkably marked Epispadias. By Dr. Jules Bouteiller. (*Le Mouvement Médical*, September 25.)
- Curative Treatment of Superficial Varices of the Limbs and of Cirsocele by Simple Isolation of the Veins, according to the method of Professor Rigaud, of Nancy. (*La France Médicale*, September 25, 1875.)
- On Circumcision. By M. de Saint-Germain. (*Le Mouvement Médical*, September 18.)
- The Question of Anæsthetics. By Dr. M. Perrin. (*Bulletin Général de Thérapeutique*, July 30.)
- Two Cases of Congenital Dislocation of the Knee-Joint. By Dr. W. L. Richardson. (*Boston Medical and Surgical Journal*, September 16.)
- On Irreducible Luxations of the Thumb backwards. By M. Marceau. (*Bulletin Général de Thérapeutique*, September 15.)
- An Apparatus for Supporting the Patient while applying Plaster of Paris in the Treatment of Fractured Femur. By Dr. Harris. (*New York Medical Record*, September 18.)
- On a Cotton-Wool Dressing facilitating Immediate Reunion. By M. Alphonse Guérin. (*Gazette des Hôpitaux*, September 18.)
- On the Treatment of Fissure of the Anus by Chloral. By Dr. Créquy. (*Bulletin Général de Thérapeutique*, September 30.)

- Cases of Femoral and Popliteal Aneurism. By Surgeon-Major Porter. (*Dublin Journal of Medical Science*, September, 1875.)
- A Case of Round-Celled Sarcoma of the Pharynx, removed by Subhyoid Pharyngotomy. By Dr. J. Rosenbach. (*Berliner Klinische Wochenschrift*, September 20 and 27.)
- On New Growths at the Umbilicus. By Dr. Wulckow. (*Ibid.*, September 27.)
- On Loss of Function of the Female Urethra, and the Formation of a New One above the Symphysis. By Dr. C. Rutenberg. (*Wiener Medizin. Wochenschrift*, September 11.)
- The Detection and Treatment of Stricture of the Urethra by help of the Endoscope. By Dr. J. Grünfeld. (*Ibid.*, September 25.)
- Two Cases of Traumatic Aneurism; one of the Brachial, and the other of the Radial Artery. By Dr. Novaro. (*Gazzetta delle Cliniche*, September 7, 14, 21, and 28.)
- The Value of the Elastic Ligature in Surgery. By Dr. A. Scarenzio. (*Annali Universali di Medicina e Chirurgia*, July and August.)
- On the Use of Laminaria in Stricture of the Urethra. By Dr. F. Parona. (*Ibid.*)
- Brachial Neuralgia from a Latent Sarcoma. By Dr. Scotini. (*Ibid.*)
- Three Cases of Onychia Maligna cured by Nitrate of Lead. By Dr. P. Donati. (*Ibid.*)
- Successful Case of 'Capillary Puncture of the Bladder. By Dr. E. Bassini. (*Ibid.*)

SYPHILOGRAPHY.

SIMMONS ON PHAGEDENIC SORES.—In the *New York Medical Record* for September 11, is an original communication on the treatment of phagedenic gangrenous venereal sores, by Dr. D. B. Simmons, in the Ken Hospital at Yokohama.

He writes: Few who have had any considerable private or hospital practice are not acquainted with the difficulties often experienced in arresting the destructive progress of what are known as phagedenic gangrenous venereal sores. Within the last two years, several cases which will admit of this classification have come into the hospital for treatment. The hot iron, nitric, chromic, and carbolic acids were all tried in turn, as well as 'Ricord's born enemy of phagedæna,' with what we believe to be the average rate of success.

The last four cases, and one especially, to which we shall refer, were almost entirely treated, however, by, if not a new process, one which was productive of such satisfactory results as to warrant us in earnestly recommending its trial. This consists in the continuous immersion of the diseased part in hot or warm water. The case referred to had been treated, before falling into our hands, by the usual means for nearly two weeks, and, though not progressing so rapidly as at first, was still advancing. Both labia, minora and majora, the fourchette, clitoris, and portions of the urethra had disappeared, and all the region occupied by the external organs of generation had been converted into an immense irregular cavity, discharging an unhealthy sanious and very fetid pus. The patient was also suffering much pain, especially if the parts became in the least dry. A sitz-bath of the ordinary size and form is what is required. In this is placed a cushion, or large bathing-sponge, to render more tolerant the long-continued position in the tub, required for obtaining the more satisfactory results. In the case referred to, the matter seemed to be increased by the use of the bath for thirty-six hours, when it began to change in character. Instead of the sanguino-serous pus which was discharged from it before, it had

assumed a more healthy, 'laudable' form. The ragged edges sloughed off, and their dark red or purple colour presented a bleached-out appearance. From this time, the progress of the disease appeared to have been arrested.

Through the dirty grey slough at the bottom granulations began to appear, and the healing up of the part, as far as the extensive loss of substance would admit, was completed in two or three weeks. Uncomfortable as the position was, the patient would not remain out of the bath for a moment longer than necessary, on account of the great relief it afforded from the burning smarting pain.

We found, after the change had commenced for the better, that it was not necessary to keep the patient so continuously in the bath, but only on alternate hours. In the interval, iodoform was sprinkled freely over the part. It is our opinion that the destructive agency is to be found in the peculiar or specific character of the discharge, and that the water simply removes or dilutes it, so as to destroy its action, the same as it would with a caustic. We do not see why this explanation is not as true and satisfactory as that the matter from a soft chancre has specific qualities, and is capable of reproducing itself, under favourable circumstances, to almost any extent.

A very bad case of multiple chancres in a female, of an inflammatory type, was treated by us in the same manner, with the same satisfactory results, about the same time.

In the male, when the organ is sufficiently large or long, we have found that its immersion in a tumbler or cup of water answered the same purpose.

We now adopt this plan in the treatment of all soft chancres that are troublesome, and are satisfied that if it is properly carried out they may often be cut materially short in their duration.

All are acquainted with the suddenness with which soft chancres often get well after long and varied modes of treatment. We believe this to be consequent upon a change in the character of the discharge, or in its irritating corrosive action, which allows of the natural healing of the wound. The same is practically effected by the dilution or removal of it by the water.

Irrigation, we have no doubt, would answer the same purpose, and could be arranged so as to subject the patient to far less inconvenience and discomfort.

We think, however, that the water should be at as high a temperature as possible in either case.

HUTCHINSON ON SOFT CHANCRES.—In the *Lancet* of September 18 and 25 is a clinical lecture by Mr. Jonathan Hutchinson on the relations of soft chancre to syphilis. A soft chancre, he asserts, is produced by pus-contagion; and a hard chancre by a specific virus. All living pus is contagious; all living pus-cells possess the power of setting up, when transferred to another home, if that home be a suitable one, a kind of inflammatory action similar to that from which they themselves have originated. Thus gonorrhœa-pus will produce gonorrhœal inflammation—but only in a favourable tissue-home. In the urethra or conjunctiva it will readily excite such inflammation, but on the skin, and possibly in the mouth, it will not live at all. The true virus of syphilis may cause inflammation, and thus result in ulceration and the formation of pus. 'Let me ask you,' he says, 'to believe that the pus so produced

is in itself contagious, and you have my theory of all soft or non-infective chancres. This pus, although produced by an inflammation caused by the specific germs of syphilis, does not necessarily contain these germs. It may contain them or it may not; just as the clover you sow in your field may or may not contain, as an accidental mixture, the seeds of the poppy as well. If the poppy-seeds be there, they will probably grow; and just so, if with the pus-cells there be also the germs of the syphilitic virus, they too may grow, and you have a mixed crop. Mixed chancres are indeed very common.' The difference, however, betwixt pus-cells and the syphilitic virus is however much greater than betwixt any two species of vegetable seeds. The soft sore is not the offspring of a specific virus, but comes as a side-result from the inflammation caused by it. Thus, if to-day all soft sores could be exterminated, and all the secretions capable of producing them by contagion, it would be found that in a few weeks they would be reproduced: whereas, if all hard chancres, and all the specific germs of syphilis were destroyed, there would be no reproduction of the disease. Mr. Hutchinson thinks that at least it is much more probable, that the pus which causes soft chancres occasionally, but not necessarily, contains the germs or virus of true syphilis, and so becomes the means of generating genuine syphilis; than that there are two specific poisons existing side by side for centuries, yet never intermixing. Soft chancres have no period of incubation. They are often multiple; and are readily reproduced by inoculation. They often occur in other parts than the genitals, and are, then, usually taken for some form of skin-disease, in which is recognised an irritable pus-secreting sore. The practical questions connected with the subject are these. 1. At what period in the course of a chancre can the surgeon venture an opinion as to its nature? 2. Are the characters of the two forms of chancre, soft and hard, often mixed? 3. Can a chancre which presented at one stage all the characters of a soft one, subsequently become indurated? The answer to the second and third questions is an affirmative one. As to the first question, it is not one always easy to decide upon. Often the soft sore will run its course and heal without any induration; and then, at the end of a month, the evidence of a hard chancre may be forthcoming: whereas, if the soft chancre be a severe and troublesome one, the true syphilitic virus may be destroyed. In this way, probably, many a soft sore does really prevent the development of a hard one. Nevertheless, as to answering the question of the patient as to the nature of a chancre, it is well ever to be guarded. It is very rare, indeed, that an infecting sore acquires any induration within three weeks of the date of contagion, and more commonly it is a month or five weeks. Until such induration takes place, nobody can tell whether it is coming or not. When soft sores heal up readily, a hard chancre not rarely follows, and the subjects of tertiary syphilis often state that the original sore healed in a week. If the sore not only ulcerate but become phagædænic, it is usually quite impossible to diagnose induration; and yet such sores are not rarely followed by secondary symptoms. All soft chancres should then be regarded very suspiciously from a diagnostic point of view. As to treatment, Mr. Hutchinson does not recommend mercury until there is induration; and then, when the need for it is unmistakable, to resort to it at once. He is in favour of further trials

of the escharotic destruction of chancres in their early stages. J. MILNER FOTHERGILL, M.D.

PETROW ON THE MORBID CHANGES IN THE SYMPATHETIC IN CONSTITUTIONAL SYPHILIS. Dr. P. Petrow, of St. Petersburg, describes (*Archiv für Path. Anatomie und Physiologie*, Band. lvii.) two kinds of changes observed in twelve cases of constitutional syphilis examined by him; some of them affected the nerve-cells, others the connective tissues.

1. In the protoplasm of the nerve-cells he observed, when the cases were not too recent, brown pigmented granules, grouped together or regularly disseminated. When the disease was more advanced, the pigment entirely filled the cell, completely concealing the nucleus. The pigment was derived from the hematin of the red corpuscles. The inner surface of the ganglionic cells had frequently undergone proliferation, so that the cells were lined with a layer of polygonal cells having round nuclei. In many of the pigmented nerve-cells the protoplasm was transformed into colloid material.

2. In the connective tissue was enormous hyperplasia, in which the nervous fibres and cells appeared to be strangled. The epithelial cells surrounding the nerve-tubules generally participated in the morbid process; they were turbid and granular, their outlines were more or less defaced, and their nuclei more distinct. In parts which had for some time undergone change, the epithelium of the inner surface of the nerve-corpuscle was replaced by a granular mass soluble in ether; the small nerve-cells were irregular, angular, and loaded with pigment, and at some points were represented only by agglomerations of pigment-granules. The sheaths of the nerve-fibres were thickened, and their nuclei proliferated; the medullary matter was finely granular, and broken up at some parts.

The author concludes that—(1) constitutional syphilis is manifested in the great sympathetic by transformation of the nerve-elements and of the interstitial connective tissue; (2) the nerve-cells become pigmented, and undergo colloid transformation; (3) there is developed in the great sympathetic, as in all the other organs, hyperplasia of the connective tissue, which atrophies the nervous elements; (4) the epithelium surrounding the proliferated nerve-cells undergoes fatty degeneration at a later period.

A. HENRY, M.D.

RECENT PAPERS.

- The Duration of Latency in Hereditary Syphilis. By Dr. J. Caspary. (*Berliner Klinische Wochenschrift*, March 29.)
 Report on Syphilis. By Dr. Drysdale. (*Medical Press and Circular*, May 26.)
 On Malignant Galloping Syphilis. By Dr. Guibout. (*L'Union Médicale*, May 25.)
 On some Cases of Syphilitic Nervous Disease. By Dr. Dreschfeld. (*The Practitioner*, May, 1875.)
 On the Treatment of Syphilis by Mercurial Fumigations. By Dr. Horteloup. (*La France Médicale*, May 29.)
 The Syphilitic Affections of the Nervous System. By Dr. Hughlings Jackson. (*Journal of Mental Science*, July, 1875.)
 On Obstinate Trigeminal Neuralgia as a Symptom of Syphilitic Cerebral Disease. By Dr. Balfour. (*Edinburgh Medical Journal*, October.)
 On Syphilitic Tertiary Epilepsy. By Dr. Alfred Fournier. (*L'Union Médicale*, October 9.)
 Pharyngo-Laryngeal Syphilis. By M. Isambert. (*Le Progrès Médical*, October 9.)
 On the Contagious Nature of Hereditary Syphilis. By Dr. J. Caspary. (*Berliner Medicin. Wochenschrift*, October 11.)

MATERIA MEDICA AND THERAPEUTICS.

KRUEG ON ARTIFICIAL FEEDING BY SUBCUTANEOUS INJECTIONS.—There is an article on this subject in the *Wiener Medizinische Wochenschrift* for August 21, 1875 (no. 34), detailing the case of a patient in the Ober Döbling Private Lunatic Asylum. Dr. Krueg remarks that in no. 31 of the same journal for 1869 (April 17) Menzel and Perco published some experiments on the absorption of nutrient materials by the subcutaneous connective tissue. They injected from one drachm to one ounce of oil or liquid fat in this way in dogs, and found that it was all absorbed in about forty-eight hours, without any special symptoms arising. The same occurred with solutions of sugar, milk, and even egg-albumen. Their object was practical, but the only attempt in the human subject did not exceed nine grains in quantity. They quote Stricker and Oser as to the success, at least in one case, of the injection of parapeptones. The author does not know of anything further having been done in this way. In cases of voluntary starvation, or when the stomach will not bear food, some plan in addition to our present means of forcible feeding seems very desirable. The patient referred to is a man with private property, aged fifty-seven, who has been in the asylum since 1868. He has no paralysis, but considers himself to be God, and the rightful ruler of the whole world, unjustly detained in this asylum. When visited, he generally begins with a long protest, will seldom answer questions, but asks a great many, and is familiar with everybody. Rather than wear what he considers unsuitable clothes, he will go naked. A shirt suffices for his dress-suit. He is often dirty, and implores to be destroyed that his soul may be saved. At other times, he believes that he is to undergo martyrdom. To escape this he will attempt suicide, sometimes by excessive fatigue, or often by refusing food. He was once obliged to be fed with the cesophageal tube for twenty-seven months. Of late he has been very changeable—now taking food, anon refusing it. When fed, he generally required his nose to be compressed, or he would not swallow. Towards the end of January he refused food, and attempts to feed him through a tube were frustrated by his straining and coughing till he was perfectly cyanotic and breathless. Even nutrient enemata were rejected. For ten days he took no food. One and a half grain of morphia *sub cute* did not induce sleep. Chloroform narcosis seemed counterindicated. It was thought that respiratory food was most suitable. Subcutaneous injections were therefore tried, with solution of sugar, and with olive-oil, through a syringe containing fifteen cubic centimètres (about half an ounce). In all, about one ounce of the solution was introduced daily—very slowly, and in quantities of about half a drachm at a time, or a little more—in the foot, belly, or side. Only redness was produced locally, and sometimes not even that, when the injection was slowly done. The moral effects were extremely good. He believed it to be very concentrated food; and in the first week of February ate voluntarily. From the 7th to the 25th he was again obliged to be thus injected, with exception of a few days, during which he took food. On the 25th a whole egg was thus

introduced. This was followed by a local abscess, which soon healed. This was probably due to the 'formed' elements of the egg-albumen, as it never happened with the oil. After this, he ate again voluntarily till March 25; then he refused food, and on the 27th was again injected. From April 1 he has been forcibly fed, with the nose pinched. The curious 'chloroform smell' of starvation vanished after the first injections. It is also singular that he now, for the first time, objects to fatty food, although quite ignorant of the nature of the food injected, which he believed to be 'extract of eggs.' [The reporter, at the suggestion of an eminent physician, tried this method of feeding cholera patients, in conjunction with Dr. Heckford. Whenever albuminous matters were used, there were local abscesses. In one case, unfortunately, pyæmia ensued. In his opinion, either gastrostomy or œsophagotomy is a far more feasible operation in most of the cases in which neither the tube nor nutrient enemata can be employed.—*Rep.*] W. BATHURST WOODMAN, M.D.

BRACKENRIDGE ON THE TREATMENT AND PREVENTION OF INFECTIOUS DISEASES BY THE INTERNAL ADMINISTRATION OF SODIC SULPHOCARBOLATE.—Starting from a belief in the germ-theory, the author (*Medical Times and Gazette*, July 24, 1875) has carried out two sets of clinical observations on the action of sodic sulphocarbolate in scarlet fever and diphtheria. The choice of the sulphocarbolate was determined by the statements made by Dr. Sansom in his treatise on the 'Antiseptic System.' The first series of cases bears on the remedial value of the salt, administered in doses of from twenty to thirty grains every two hours to patients suffering from scarlet fever. Fifty successive cases were thus treated in the Edinburgh Royal Infirmary. All of them recovered. Nineteen were males, thirty-one were females; their average age was 17.5 years; the average duration of the disease before treatment was commenced, 4.4 days. In three cases only was recovery long delayed by sequelæ, and in these the treatment was commenced on the sixth, tenth, and fourteenth days of the fever respectively,—too late to prevent the after-effects of the disease. In forty cases no complication interfered with the quick and quiet subsidence of the fever. By way of contrast to these favourable results, the author mentions that of twenty-four patients admitted into the scarlet fever wards during the four months immediately preceding the commencement of the treatment by sodic sulphocarbolate, no fewer than six died.

The second part of the inquiry relates to the prophylactic virtue of the sulphocarbolate when administered to healthy persons exposed to the infection of scarlet fever, diphtheria, and measles. It was given in seven families to twenty-two individuals exposed to the poison of scarlet fever; in three families, to fifteen individuals exposed to the poison of diphtheria; in three families, to eight persons exposed to the poison of measles. The dose of the salt varied, according to age, from five to thirty grains three or four times a-day, and sometimes, when well borne, more frequently. The diseases did not extend, in a single instance, beyond the individuals first affected.

BRACKENRIDGE ON QUININE AS A GARGLE IN DIPHTHERITIC, SCARLATINAL, AND OTHER FORMS OF SORE-THROAT.—The author (*Practitioner*, August, 1875) has treated a considerable number of cases of sore-throat, due to different causes, with

a gargle containing two grains of sulphate of quinine, and five minims of dilute sulphuric acid, to each ounce of water. Sometimes, when the remedy was well borne, the proportion of quinine was increased. Its employment was suggested by the experimental results of Binz and other recent inquirers. In the early stage of cynanche tonsillaris, the quinine gargle was found to be of very little use. In syphilitic ulcers it appeared to hasten the healing process, when used in conjunction with appropriate treatment of a specific kind. In non-syphilitic ulceration, and in the sore-throat of scarlatina, it proved to be of considerable value; its most brilliant success, however, was achieved in diphtheritic sore-throat—both in the milder and the more severe forms of the disease. One very severe case, which appears to illustrate the superiority of quinine to potassic permanganate as a local application, is recorded *in extenso*.

E. BUCHANAN BAXTER, M.D.

QUINTARD ON MORAL CURATIVE FORCES.—In his *Thèse de Paris*, June 2, 1875, no. 187, Dr. Quintard shows how the physician may avail himself of moral influences in the cure of disease. Dr. Quintard studies the various passions in turn; joy, grief, fear, anger, hope, friendship, and love are successively passed in review, and in each chapter Dr. Quintard shows the influence of these sentiments not only on the progress of the disease but also on its cure, by numerous examples drawn from various sources. The facts with regard to the contempt of pain are numerous, especially in the case of wounds by fire-arms.

These latter are, however, in the opinion of the reviewer in the *Bulletin Général de Thérapeutique*, Sept. 15, much less conclusive than is believed by Dr. Quintard. In these cases, in fact, the ardour of the struggle, on the one hand, and the insensibility produced by great shock on the other, explain the absence of pain better than it is explained by moral influence. Many surgeons have been in a position to observe soldiers, who, seriously wounded in action, did not seem to suffer at all, whilst the same men a few days afterwards shouted out at the least operation. M. Quintard terminates his work by the following quotation from Tissot. 'A time will come when the profession will count the mechanism of their art, the material part of their science, as nothing or as very little, and will esteem highly the philosophy of this same art, that is to say, the dual knowledge of physical and intellectual man.'

BOURNEVILLE ON THE MONOBROMIDE OF CAMPHOR.—M. Bourneville laid the results of some researches on the physiological and therapeutic action of the monobromide of camphor before the Paris Academy of Sciences at a recent meeting. He has experimented on frogs, guinea-pigs, and cats, to which the monobromide of camphor was administered in the form of subcutaneous injection. The results obtained are briefly these. 1. The monobromide of camphor diminishes the number of heart-beats, and causes contraction of the vessels of the ear. 2. It diminishes the number of the inspirations without disturbing their rhythm. 3. It lowers the temperature in a regular way: this lowering, in fatal cases, increases until the end. Thus in cats the temperature is observed to fall from 102 to 72 degrees. In the animals which recovered, the lowering of the temperature was succeeded by a rise to the normal height, but taking a longer time than that in which the lowering took place. 4. The monobromated

camphor possesses apparently incontestible sedative properties. 5. It does not produce any disturbance in the digestive functions, but its prolonged use brings on a somewhat rapid emaciation, especially in the cats and guinea-pigs. The therapeutic effects of monobromide of camphor are remarkable. The writer mentions as amongst the diseases on which he has experimented with satisfactory results, cardiac affections of nervous origin, asthma, pain of the neck of the bladder without catarrh, and finally, cases of epilepsy, in which fits and vertigos were simultaneously present.

DEBOVE ON THE PHYSIOLOGICAL ACTION OF DRUGS, AS THE RULE OF THEIR EMPLOYMENT THERAPEUTICALLY.—In order to solve this question, M. Debove studies some drugs of which the therapeutic action is best known, as quinine, mercury, and iodine, and shows how very little their physiological action is known; then he traces a rapid sketch of the results produced by experimental physiology in the study of drugs, and arrives at conclusions which the reviewer of his thesis (*Bulletin Général de Thérapeutique*, September 15) considers to be very true and equitable. The first is that, in the present state of the science, the physiological action of drugs cannot become the rule of their employment therapeutically. 2. If the physiological action of drugs cannot be the rule of their employment, it must be owned that it affords us precious indications by which clinical medicine is daily profiting. 3. The progress realised every day in the different branches of physiology warrant us in hoping that a time will come when empiricism, necessary at the present time, will give way to a rational system of therapeutics, founded on physiological teachings.

RECENT PAPERS.

- On Endosmosis in Therapeutics. (*Lyon Médical*, July 11.)
 On the Isolating System of Medicine. By Dr. de Robert de Latour. (*L'Union Médicale*, September 21.)
 On Bromide of Camphor, and its Employment as a Therapeutic Agent. (*Ibid.*)
 On Subcutaneous Injections of distilled or plain Water. By Dr. Leopold Lafitte. (*L'Union Médicale*, September 25.)
 On the Action of a Natural Arseniate of Iron in Chlorosis and Dyspepsia. (*Gazette des Hôpitaux*, September 16.)
 Curare or Woorara: Can it be used therapeutically? By Dr. C. L. Royer. (*New Orleans Medical and Surgical Journal*, September, 1875.)
 Hydrate of Chloral in Dysentery. By Dr. S. H. Lambert. (*Clinic*, September 11.)
 The Use of Revulsions in Diseases of the Nervous System. By Dr. Allen McLane Hamilton. (*Philadelphia Medical Times*.)
 On Villate's Solution. By Dr. Muscroft. (*Clinic*, August 28.)
 On Subcutaneous Injections of plain or distilled Water. By Dr. Pillet. (*L'Union Médicale*, September 30.)
 On the Treatment of Typhoid Fever by Aconite. By Dr. C. Deshayes. (*Gazette Hebdomadaire*, September 24.)
 On the Use of Collodion in Erysipelas, Zona, and Anthrax. By Dr. Caloy. (*L'Union Médicale*, September 18.)
 On the Alkaline Treatment. By Professor Bouchardat. (*Bulletin Général de Thérapeutique*, September 30.)
 The Will considered as a Moral Power, and as a Therapeutic Means. By Dr. Joly. (*Gazette des Hôpitaux*, September 30.)
 Note on Pancreatine. By Dr. Crolas. (*Lyon Médical*, October 3.)
 On the Use of Digitalis in the Treatment of Pneumonia. By Dr. Tony Saucerotte. (*Gazette Médicale de Paris*, October 2.)
 A Contribution to the Action of Jaborandi. By Dr. Girgensohn. (*Ibid.*)

- On the Substitution of Salicylic Acid as an Antifebrile by Salicylate of Soda. By Dr. C. Moell. (*Berliner Klinische Wochenschrift*, September 20.)
 On the Antifebrile Action of Salicylic Acid. By Dr. Zimmermann. (*Archiv für Exper. Pathol. und Pharmacologie*, Band IV. Heft. III.)
 On Nitrite of Amyl: its Action and its Uses in Medicine, especially in Mental Diseases. By Dr. A. Tebaldi. (*Revista Sperimentale di Freniatria e di Medicina Legale*, 1875.)
 On the Therapeutic Uses of Iodide of Starch. By Dr. R. Bellini. (*Lo Sperimentale*, September.)

OBSTETRICS AND GYNÆCOLOGY.

INGERSLEV ON THE COMPARATIVE WEIGHT OF NEW-BORN CHILDREN.—The *Nordiskt Mediciniskt Arkiv*, vol. vii., contains an elaborate paper on the comparative weight of new-born children, by Dr. E. Ingerslev, clinical assistant in the Lying-in Institution in Copenhagen.

The author first endeavours, by a comparison of the weights of 3,450 infants born at full term, to establish the relation between the average weight of the child on the one hand, and on the other hand the age and size of the mother, and the number of pregnancies. The average weight of the infants was 3,333 grammes; the average for the males being 110 grammes more than for the females.

A classification of the births according to the ages of the mothers shows that the influence of age on the weight of the child is not so distinct as has been asserted by Dr. Matthews Duncan, if the births be arranged according to the pregnancies; but the influence of age becomes evident if the births be arranged in a single table without regard to the pregnancies; and it extends up to the fortieth year. Dr. Ingerslev's observations do not confirm Dr. Duncan's statement, that the maximum weight is found between the twenty-fifth and twenty-ninth years of the mother's age.

The influence of the number of pregnancies on the average weight of the child, observed particularly by Hecker of Munich, is evident, especially when the pregnancies are classified according to the ages of the mothers. In the tables showing this, the influence of plurality comes out more distinctly than that of age. The coincidence of pregnancy with the average of age of child-birth seems specially favourable to the weight of the child; for in the three first pregnancies the average weight of infants born in the mean years of the childbearing period exceeds that of all the children born before and afterwards.

With regard to the weight during the first days of life, the author mentions the researches of Siebold, Haake, Winckel, Gregory, Kzmarsky, Bouchaud, and Ritter, relatively to the loss of weight after birth, and enumerates the different explanations of this phenomena which have been given. He has examined more than 100 infants, which were weighed immediately after birth, and daily up to the tenth day. Excluding all cases where the children or their mothers were ill, there remained fifty healthy children born at full term. In all these, a diminution of weight was ascertained to take place after birth. In some rare cases, the weight increased or remained stationary on the first day, when the diminution due to the discharge of meconium did not take place, either because the meconium had been evacuated at the time of birth, or because it did not take place before the first weighing, and the infant had in the

interval taken the breast; but the increase was transient, and the diminution appeared on the second or third day.

The average decrease was about 222·4 grammes (one-fourteenth or one-fifteenth of the general weight); it was greatest, absolutely and relatively, in first-born children. In boys it was greater than in girls; but the loss was compensated sooner in boys. The loss was greatest, and the subsequent increase more tardy, in inverse proportion to the development of the infant. The increase generally became manifest on the fourth day. On the tenth day, thirty of the children exceeded the original weight; one had exactly reached it; and in nineteen the weight was below that at birth.

No connection can be traced between the detachment of the umbilical cord and the commencement of the increase in weight; the latter generally appears before the fall of the cord. It is necessary to take special notice of the absorbed and eliminated materials, and to compare them. The decrease of weight cannot be explained only by the evacuation of the meconium and urine, this quantity amounting to only half the loss of weight in a given time. The remainder must be eliminated by other ways. It was at first thought that the loss of weight might be explained by insufficiency of food; but from experiments where the infant was regularly fed by a healthy nurse from the time of birth, it appears that the decrease takes place just as in infants suckled by their own mothers.

The loss being relatively greater at the time nearest birth, the quantity of food should be great in proportion, in order to maintain the weight of the body; but this cannot be from the manner in which milk is secreted and children are fed for the first two or three days after birth; and, since the relations of decrease and the commencement of increase are not changed by the use of sufficient food, it must be concluded that the infant derives no benefit from this, perhaps because the assimilating power of the intestines is not yet sufficient. The consumption of material and the consequent loss of weight are hence an inevitable physiological necessity.

PIPPINGSKÖLD ON A CASE OF DOUBLE UTERUS AND VAGINA: HÆMATACOLPOS UNILATERALIS: PREGNANCY.—J. Pippingsköld (*Finska Läkare Sällsk. handlingar*, Band xvi. and *Nord. Medicin. Arkiv*, Band vii.), describes a case of double uterus. The subject was aged twenty-two, and had menstruated from the age of sixteen. Within the last four years, according to her statement, she had had severe attacks of inflammation in the abdomen. She was in the fifth month of pregnancy, but on examination the orifice of the uterus could only be reached with difficulty, and the whole anterior part of the vagina as well as the left half was occupied by a tense, fluctuating, rather painful tumour. In July, 1873, she was prematurely confined. In the beginning of October, after a difficult menstruation, the swelling was again distended, and much more prominent than it had been four weeks after labour. When she was next seen in February 1874, the swelling was lower (it had been punctured); and on examination there was found to be double uterus. The tumour was emptied by means of a Dieulafoy's aspirator, after which a broad vaginal orifice was discovered at the bottom of the cyst. The punctured opening was enlarged, and the cavity washed out; and the septum, which was four or five millimètres thick, was divided

for an extent of four or five centimètres. There was little hæmorrhage and no reaction. On March 8, an examination was made, and two uterine orifices were found; one lay backwards and to the right, less broad but more permanent, leading into an uterine cavity eight centimètres long (in which the pregnancy had taken place), the body and fundus being to the right; the other uterine orifice was lower, and was situated anteriorly and to the left; the cavity was six and a half centimètres in length. Subsequently, an examination *per rectum* detected a bifurcation between the two halves of the uterus, with considerable divergence. Menstruation had occurred normally.

A. HENRY, M.D.

BOUCHACOURT ON UTERINE HÆMORRHAGES CONSECUTIVE TO PARTURITION.—M. Bouchacourt read the first part of a paper on this subject before the National Medical Society of Lyons on July 19, 1875 (*Lyon Médical*, August 22). He considers the following to be the chief causes.

1. Retention of urine, which catheterisation arrests.
2. Laxity of the abdominal walls, which a binder prevents.
3. Too rapid change of bed. Five or six hours should at least elapse before the patient is moved.
4. The too hasty removal of the soiled linen.
5. Warmth of the bed, room, or the application of too warm things to the abdomen.
6. Frequently recurring pregnancies are an incontestable predisposing cause.
7. Fibroids; but practice has not fulfilled theoretical apprehensions.

He advocates injection, and plugging especially, with perchloride of iron, in preference to the old routine practice.

He relates a case where a patient was seized with violent endometritis on the third day of delivery from plugging the vagina and uterus with pledgets saturated with perchloride of iron. On examination three months afterwards, a circular band about three centimètres from the vulva permitted only the passage of the uterine sound with difficulty. A five months' dilatation enabled him to examine the cervix, which was almost gone, without the least trace of an os.

LAROVENNE ON A MODIFICATION OF THE ORDINARY FORCEPS TO ENABLE TRACTION TO BE APPLIED TO THE CENTRE OF THE BLADES.—The author (*Lyon Médical*, August 22), in order to carry out M. Chassagny's fundamental doctrine that 'the force should be directed on the centre of a body which has to engage and pass along a curved canal such as the pelvis,' has the ordinary forceps blades pierced at the anterior and posterior margins, corresponding to the centre of the head seized by the forceps, through which he passes a strong piece of tape, threading them from within outwards; each blade having a separate tape. The instruments are applied in the usual way; the four ends of the tape are then tied together and traction made upon them, the handles of the forceps being used as a rudder to steer the head into whatever position it is thought requisite. Its mode of action he describes as follows. The power in the middle is represented by the strings of tape, and the resistance by the diameters of the head which fix it at the contraction. If the handles of the forceps be depressed, or what is the same, let alone, the beneficial effect of the power undergoes a proportionate diminution, by the shortening of the arm of

the lever represented by the handles of the instrument. Traction can be assisted by concurrently elevating the handles of the forceps without supporting them against the pubic arch. This action, which tends to lower the portion of the head contiguous to the sacral promontory, constitutes a power of which the fulcrum is in front against the anterior wall of the pelves, and the resistance behind at the level of the promontory. By alternately drawing the strings from one side to the other, the direction of the force can be varied without the danger of doing the mischief that is apt to arise in the use of the forceps, where great care and skill is not exercised.

Clinical experience has convinced M. Laroyenne of the readiness of application of this modification, of its safety, and its advantage, and he strongly recommends its use when there is any contraction or disproportion of the pelvis needing instrumental aid.

W. C. GRIGG, M.D.

RECENT PAPERS.

On the Medical Treatment of Natural Labour, and Chloroform as a Specific. (*New Orleans Medical and Surgical Journal*, September, 1875.)

Mechanical Appliances in Uterine Surgery. By Dr. W. H. Barker. (*Boston Medical and Surgical Journal*, September 9, 1875.)

Chloroform in Parturition. By Dr. Cleveland. (*Clinic*, August 28.)

On the Anomalies of Eruption. By Dr. Magitot. (*Archives de Tocologie*, September, 1875.)

On the Uterine Lymphatics, and their Function in Uterine Pathology. By Dr. Just Lucas-Championnière. (*Ibid.*)

Lectures on Puerperal Eclampsia. By Dr. Péter. (*Archives de Tocologie*, September, 1875.)

Cursory Notes on Ovarian Pathology. By Dr. J. Matthews Duncan. (*Obstetrical Journal*, September, 1875.)

On the Relative Frequency of the Different Cranial Positions. By Dr. J. G. Swayne. (*Ibid.*)

Notes on Puerperal Fever. By Dr. Madge. (*Ibid.*)

Nervous Cough connected by Reflex Action, with an Anteversion of the Uterus. By Dr. Cristoforo Malachio. (*Revue de Thérapeutique Medico-Chirurgicale*, October 1.)

Cases of Vulvar Gangrene in Newly Delivered Women. By Dr. G. Humbert. (*L'Union Médicale*, October 2.)

On a New Tractor: Some Reflections on the Forceps. By Dr. Chassagny. (*Lyon Medical*, October 3.)

Case of Congenital Deficiency of the Peritoneum. By Mr. Lawson Tait. (*Obstetrical Journal*, October, 1875.)

A Case of Natural Turning. By Mr. P. R. Giles, junior. (*Ibid.*)

On Accidental Concealed Hæmorrhage, with Cases. By Dr. John Brunton. (*Ibid.*)

Puerperal Endocarditis. By Mr. Lawson Tait. (*Birmingham Medical Review*.)

A Case of Twins, in which one of the Children was Malformed and had Three Feet. By Dr. Halberg. (*Berliner Klinische Wochenschrift*, September 27.)

On the Causes and Treatment of Metrorrhagia during Abortion. By Dr. E. Kreiner. (*Med.-Chirurg. Centralblatt*, September 10 and 17.)

On the Treatment of Post Partum Hæmorrhage. By Dr. J. Pollak. (*Ibid.* September 24.)

On the Obliquely contracted Pelvis. By Dr. Cornelli. (*Wiener Medizin. Wochenschrift*, September 18.)

Clinical Thermometry in the Puerperal State. By Dr. Chiarleoni. (*Gazzetta delle Cliniche*, August and September.)

Heart-Disease and Croupous Pneumonia as Complications of Pregnancy. By Dr. E. Ingerslev. (*Ugeskrift für Læger*, July 24 and 31.)

An Unsuccessful Case of Cæsarean Section. By Dr. S. Duse. (*Giornale Veneto di Scienze Mediche*, August.)

REPORTS OF FOREIGN SOCIETIES.

ACADEMY OF MEDICINE IN PARIS.

July 27. *Attempted Suicide*.—M. Hervieux communicated the account of an attempt at suicide by a knife driven three and a half inches into the chest, near the fifth rib. There was considerable hæmorrhage, which was stopped, and cure was complete in a few days. M. Hervieux believed that the heart and the pericardium were not touched in consequence of the back of the instrument being turned towards them. The lung was, of necessity, wounded, but to a very slight depth only. However, neither cough, sanguineous expectoration, pneumonia, nor pneumothorax was present; whilst percussion and auscultation did not indicate anything abnormal. The writer of the paper cited several cases in which no pulmonary accident had been noted after more or less deep chest-wounds.

Cholera.—M. J. Guérin terminated his remarks on cholera, and examined all the systems which have been proposed to explain different choleraic epidemics. He came to the conclusion that the appearance of the scourge had always and everywhere been preceded by gastro-intestinal troubles, by diarrhoea of a more or less choleraic type: in a word, by a medical constitution which prepared for and favoured the ulterior development of the disease. With regard to this point he laid particular stress on the Jamaica epidemic, which could neither be laid to the account of importation nor to the revivification of germs. In 1873, the cholera followed the same course in India as in Europe, and there also was preceded by diarrhoea of a choleraic form. It would, therefore, be useless to go to India to combat a plague which originates spontaneously in Europe.—M. Barth reproached M. Guérin for having passed over in silence the epidemic of 1865, in which instances of importation were particularly noted.—M. Guérin replied that he had spoken of them, but had not thought it necessary to lay stress on them.

August 3. *Abdominal Tumour*.—M. Laboulbène related the sequel of a previously communicated case of Hippocratic succussion perceived in an abdominal tumour. The tumour, which was enormously developed and indolent, opened and gave issue to foetid pus and gas. A drainage-tube was inserted, and after a month of repeated washings out, the patient recovered. In all probability there was a purulent collection situated between the posterior abdominal wall and the intestinal coils, without fistulous communication with the intestine.

Cholera.—M. Woillez replied to M. Guérin's discourses on cholera, and referring to the epidemic of 1873, declared that the facts observed in no way authorised the theory of spontaneous generation.—M. Piorry asserted that this discussion on spontaneous generation and importation was utterly useless. What should be known is that cholera may be simple or compound. Simple cholera is cholera, which is not serious; compound cholera is a septicæmic complication of simple or Indian cholera. He advised that routine should be abandoned, and that a rational nomenclature, as in chemistry, should be adopted.—M. Briquet called attention to the fact that a great cholera epidemic might leave behind it germs which remain dormant and are revived

DR. DEPAUL has left Paris to go to Rio de Janeiro, in order to be present at the confinement of the Countess d'Eu, the daughter of the Emperor of Brazil.

during the summer of the next year, disappear with the cold season, and again revive the following year.

August 17. *Cholera*.—M. Guérin again referred to the question of cholera, and brought up a communication from M. Cazalas, according to which the cholera existed at Saint Germain-en-Laye and at Villeneuve l'Étang before its appearance at Havre, Rouen, and Paris. It must thence be admitted that the Parisian epidemic did not spring from that of Rouen. From the scientific point of view, said M. Guérin, M. Cazalas's memoir opened up new horizons as to the special nature of summer diarrhœas, their evolution, and the different forms assumed by them, from the most simple diarrhœa to confirmed cholera. From a practical point of view, this memoir entailed a complete remodelling of the sanitary measures hitherto adopted. He demonstrated the inutility of quarantines and of other prophylactic measures, which are only, in fact, an attack on personal liberty and injurious to the interests of commerce.—M. Briquet replied that the absence of necropsies warrants the doubt that there was any question of Asiatic cholera. He adopted the doctrine of the contagion of the original Indian and Bengal cholera, and applied it to the series of epidemics which followed each other in 1817-1828, 1854, and 1845. He wound up by affirming that ordinary cholera is a meteorological disease, the principal cause of which is the lowering of the temperature, and the secondary cause, insufficient nourishment. Epidemic cholera is a disease of Indian importation; and this doctrine of importation, according to M. Briquet, has never been met by any serious argument, either from the etiological point of view, nor from the progress of the disease.—M. Chauffard protested strongly against the similarity which M. Guérin wished to establish between cholera nostras and Asiatic cholera; and M. Barth declared that the partisans of spontaneous generation of cholera wilfully closed their eyes to the light. The few cases of choleraic diarrhœa pointed out by M. Cazalas did not prove that the epidemic of Paris had not been imported from Paris or Havre. If an African gale drove a swarm of locusts into the south of France, it could not be said that it was not an importation, because there had previously been locusts in the north of France. If even commerce suffered through measures of prophylaxis, the interest of the public health should take precedence of every other consideration.

August 24. *Diagnosis and Therapism of Asphyxia by Bronchial Foam or Angiaphrosia*.—M. Piorry read a paper on this subject. He said that angiaphrosia, or asphyxia by bronchial foam, is, as a general rule, only an epiphenomenon of a multitude of lesions; but it constitutes a special organopathic condition of itself. This disease is diagnosed by distant auscultation, which consists in applying the ear to the mouth and nostrils of the patient, so as to see if in the angaria a more or less deep rhonchus does not show itself. In this diagnosis, mediate auscultation and plessimetrist are employed, which, either by the different quality of the sounds detected by auscultation or by the differences in the sonority of the chest, allow the existence of more or less viscous mucus obstructing the bronchi to be established. In proportion as mucus accumulates, the colour of the patient's features changes more and more; it becomes specially deeper about the lips and more livid; the strength becomes enfeebled; the pulse is lower, becomes irregular; coldness comes

on; more and more hyperæmia shows itself; expectoration is more and more difficult; and axonæmia occurs sooner or later and terminates the existence of the patient. The therapeutic treatment consists in first, above all, seeking to remedy the organopathic conditions which have brought on the complication in question; finally, in treating the complication itself, it is advisable to recommend the patient to make very deep inspirations, followed immediately by a purposely violent cough, so as to bring on expectoration. The depression of the head on the chest singularly favours the exit of the sputa; it is particularly when the patient feels that the sputa bring on the need to expel them, and that he is unsuccessful in so doing, that it is well to proceed in this way to obtain the exit of these liquids. The physician should use his authority, when the strength and the will of the patient are failing, and sometimes thus succeeds in retarding the fatal ending. To prevent the accumulation of the liquids in one part of the air-passages, it is urgent to lay the patient on the other side of the chest; if the sputa be very viscous and very thick or dry, inhalations of watery vapours must be tried, or the patient must smoke cigarettes of datura stramonium or other narcotics. When the sputa are very liquid, nothing is more useful than to breathe a dry and hot air. In the early stages, emetics and purgatives may be advantageously employed, by emptying the digestive tube of the gaseous liquid or semi-solid matters it contains. Recourse must also be had to inhalations of oxygen gas, to titillations of the larynx and the top of the œsophagus, and even to the introduction of a sound into this canal. Finally, there remain the semi-surgical means in extreme cases; aspiration of liquids by means of a pump introduced into the trachea; tracheotomy, etc. These means are employed in imitation of the veterinary surgeons, who combat meteorism in animals by abdominal puncture; a practice which medicine, as applied to the human subject, will scarcely admit in analogous circumstances.

Cotton-Wool Dressing.—M. Gosselin read cases with reference to M. Guérin's cotton-wool dressing. He said that the mode of action is good; firstly, because it protects from too intense suppurative inflammation; and secondly, because it satisfies this indication by its great quality of being an uncommon dressing, which, without interruption, keeps up occlusion, protection, immobility, uniform temperature, insensibility, and mental satisfaction. These conditions, if the previous health be not too bad, and if the atmospheric hygiene be not too defective, lead to the very simple and yet very great result of rapid and uninterrupted formation of an essentially and promptly reparative granulous membrane.

September 7. *Myopia*.—M. J. Guérin called to remembrance the conclusions of a work which he had presented to the Academy of Sciences in 1841. 1. There exist two kinds of myopia, as there exist two kinds of strabismus, mechanical or muscular myopia, and optic or ocular myopia. Mechanical myopia, like strabismus of the same kind, results from the original brevity, or the active retraction, of the muscles of the eye. In mechanical myopia, the too short muscles are the four recti muscles simultaneously, or two or three only of them, but so that the shortening is proportionately equal in the muscles affected. Myopia is frequently combined with strabismus, when several of the recti muscles are retracted to greater relative shortness than one of

them, or even only one rectus muscle is retracted but to a slight extent. The characteristics of mechanical myopia resemble those of mechanical strabismus, furnished by the shape of the ocular globe, and by the movement of the eyes. The active treatment of mechanical myopia should consist in the subconjunctival section of the too short or retracted muscles. M. Guérin has several times performed this operation with success; sometimes for complicated cases of strabismus, sometimes for cases of simple myopia without strabismus. The immediate knowledge of the cause of mechanical myopia tends to demonstrate that the eye adapts itself by alternately lengthening or shortening to the means of the primary contraction of the recti muscles, at the distance of the objects at which it looks. Direct experiments prove that this is so.

M. Guérin presented to M. Arago a young man, aged twenty-eight, in whom alternate retreat and relaxation of the eye, corresponding to short and long sight, were appreciable without the help of any instrument. These facts and experiments help to show that the crystalline lens does not alter in form to adapt itself to the sight at different distances, but that it only changes its relation with the retina and the transparent cornea.

September 14.—*Myopia*. M. Giraud-Teulon continued the discussion on myopia. According to him, it is perfectly established by the modern school that the recti muscles by their contraction have no direct action on the mechanism of the adaptation of the eye to different distances. This same adaptation is realised by the single and only modification of the curvature of the surfaces of the crystalline lens, which neither changes place nor distance in relation to the cornea or the retina during this modification of form. M. Giraud-Teulon summarily enounced the experimental facts on which the two laws rest, which he called to recollection. The recti muscles (no more than the oblique) only take a direct and mechanical part in the act of accommodation. Anatomy, physiology, and experimental pathology show the same teachings. Only to cite the latter, in a case of complete paralysis of the outer muscles of the eye (*Lusitas oculi* of the ancients), Von Graefe has recorded the persistence and preservation of the faculty of accommodation. *Per contra*, it is daily observed that the instillation of a strong solution of atropia, which leaves the action of the motor muscles of the eye perfectly intact, completely paralyses the power of accommodation. On the other hand, we see the reverse effect produced under the influence of Calabar bean or its alkaloid, eserine. It is not difficult, according to M. Giraud-Teulon, to directly demonstrate that this adaptation has taken place by a modification which has supervened in the degree of curvature of the lens, and only so occurs. M. Giraud-Teulon ended by calling to mind that myopia, being one of the most serious of acquired diseases, may be prevented by prophylactic measures; by a hygiene founded on the knowledge of its real mechanism.

ACADEMY OF SCIENCES.

June 7, 1875. *Lightning Accidents*.—M. Passot sent details of three cases of accidents from lightning. 1. The two first cases were actually struck down by the stroke. 2. The portions of the body struck were of little importance with regard to nervous phenomena. 3. The effects on all three cases diminished

very rapidly from the first to the last struck. 4. In the first two cases, the lightning-stroke caused a complete resolution of the muscles; and in the third a muscular contraction.

June 14. *Phenomena of Old Age*.—M. Chevreul presented a third memoir on the explanation of the numerous phenomena consequent on old age. The first section of this memoir comprised the exposition of the sources whence the author derived the instructive and intellectual faculties of animals and man, examined in their normal condition. The object of the second section was the application of the study of those faculties, as they were seen in the first section, to the explanation of several phenomena of the decadence of the human understanding brought on by old age.

July 12. *Spontaneous Coagulation of Blood*.—M. Hénard communicated a note on the causes of the spontaneous coagulation of blood when it leaves the organism. One of the principal causes is the contact of a foreign body, as that of the palette in bleeding. If a segment of vein filled with blood be sheltered from contact with the air, coagulation does not take place; when the vessel is dry, the sanguiferous mass becomes pulverulent. Thus the blood retains its vivifying property whilst it is in contact with the vascular walls; coagulation is death of the blood.

August 2. *Recurrent Sensibility of the Nerves of the Hand*.—A note by M. A. Richet was read, on the recurrent sensibility of the peripheric nerves of the hand. In 1864 Langier made the suture of the median nerve at the level of the wrist, and having found that peripheric sensibility was re-established, he declared that conductivity had been re-established by the cicatrix. M. Richet, having had the opportunity of observing a similar fact, sought for peripheric sensibility before making a suture, and found it intact. This fact demonstrated to him that the peripheric sensibility of the median nerve is assured by the anastomoses of the terminal loops with the filaments of the radial and cubital. Besides, the nerves of each side of the hand receive from the opposite side filaments which terminate at the same part of the teguments. To resume, where at first only a fact of immediate reunion of the nerves with passage of the nervous influx across the cicatrix had only at first been seen, M. Richet had, he said, shown that on the contrary, there was nothing but the physiological manifestation of a pre-existent normal anatomical disposition of which the physiologists had taken no account, and which had but very distant relations, if any, with the facts of recurrent sensibility discovered by Magendie in the posterior radial. It is important in the interests of truth to formulate these data, which once again demonstrate that clinical observation which has fixed the attention of learned men on these remarkable facts, especially of the histologists and experimenters.

REVIEWS.

An interesting Pamphlet, printed for private circulation, contains the following 'Collected Papers,' being the various communications which emanated from the Physiological Laboratory of University College, London, during 1874-75.

1. *Note on the Excitation of the Surface of the Cerebral Hemispheres by induced Currents*. By J.

BURDON SANDERSON, M.D., F.R.S. (*Proceed. Roy. Soc.*, June 11, 1874.)—The author finds (1) that severance of the superficial convolution, without disturbing the flap, does not alter the properties of the active spots; (2) on the surface of a deeper horizontal cut, corresponding spots exist which have the same properties; (3) when the corpus striatum is reached, the same movements are produced by excitation of its upper and outer part. He concludes that the superficial convolutions do not contain organs essential to the production of certain combinations of movements.

II. *Note on the Electrical Phenomena which accompany Irritation of the Leaf of Dionæa Muscipula.* By J. BURDON SANDERSON, M.D., F.R.S. (*Proceed. Roy. Soc.*, October, 1873.)—This describes the method of detecting the electric current from the proximal to the distal end of the leaf of *Dionæa* (normal leaf current). And in the stalk a current in the opposite direction. Irritation of the sensitive hairs on the upper surface of the lamina causes the galvanometer to swing in the opposite direction (negative variation), and the leaf closes. The deflection of the needle by the stalk current is increased by the irritation of the leaf. Electrical excitation produces the same effects.

III. *Note on the Intercellular Development of Blood-Corpuscles in Mammalia.* By EDWARD ALBERT SCHÄFER. (*Proceed. Roy. Soc.*, no. 151, 1874.)—Among the cells of the subcutaneous connective tissue of the new-born rat, the author describes some as having a reddish tinge throughout, while others contain red patches varying in number, size and circumscription. Some cells are obviously filled with distinct red globules of hæmoglobin. These (connective tissue) cells become elongated and the red globules are seen in a common cavity of fusiform shape. When two or three of these cells overlap by their pointed extremities they coalesce, and their cavities become continuous. The development of these hæmopoietic cells is likened to that of the area vasculosa of embryo chick.

IV. *On the Cartilages and Synovial Membranes of the Joints.* By CARL REYHER, M.D., of Dorpat. (*Journal of Anatomy and Physiology*.)—The author details investigations into the mode of development of the surfaces of joints, by which the cells on the inner side of the capsule are shown to be continuous with those on the surface of the cartilage, and the so-called synovial processes are seen also to be derived from this layer of superficial cells, which at one time were very like epithelium.

V. *An Account of Certain Organisms occurring in the Liquor Sanguinis.* By WM. OSLER, M.D.—Changes are described as taking place, after the addition of neutral fluid and heat to 37° Cent., in certain masses of organisms found in the blood of most animals. When watched for a long time under the above circumstances the familiar granular masses become less dense at their margin, and numerous filamentous and spermatozoon-like forms are seen wandering away from the mass. In a few hours nothing but small granules are left, and at the end of six hours the original mass has nearly quite disappeared.

VI. *The Structure of the Pacinian Corpuscles considered with reference to the Homologies of the several parts composing them.* By EDWARD A. SCHÄFER, Assistant-Professor of Physiology, University College,

London.—The paper contains an accurate description of the structure of the Pacinian corpuscles which are shown to be composed of (1) central fibre, (2) core, and (3) tunics. The central fibre is continuous with the axis-cylinder of the communicating nerve. The medullary sheath stops short of the corpuscle, the primitive sheath passes around and blends with the outer layer of the core, while the neurolemma is continuous with the outer layer of the tunics.

VII. *Description of an Apparatus for Maintaining a Constant Temperature under the Microscope.* By E. A. SCHÄFER, Assistant Professor of Physiology, University College, London.—The author describes a warm stage which is heated by a circulating current of water kept at a constant temperature by means of a gas regulator, the actual temperature of preparation being determined by a thermometer passed into the central chamber of the stage. This must be removed when the preparation is to be examined.

VIII. *A simple form of Gas Regulator for Maintaining a Constant Temperature in Incubators and Air Baths, etc.* By F. J. M. PAGE, B.Sc., F.C.S.—The form of regulator here described is not affected by barometric variations, and therefore is well suited for prolonged investigations. It is, at the same time, easy to fit up.

On the Relation of Diabetes to Food, and its Application to the Treatment of Disease. By ARTHUR SCOTT DONKIN, M.D. Smith, Elder & Co., 1875, pp. 186.

Dr. Donkin is well known to the profession as an authority on the subject of diabetes, and especially in reference to its treatment by diet. Of course the conclusion arrived at is the old one of skimmed milk as the best dietary for the diabetic. According to the author milk-sugar is converted into lactic acid in the course of digestion, and therefore is of use in the economy, while it does not add to the existing glycogen. He also holds that albuminous matter in the form of casein does not readily undergo the splitting up into glycogen and nitrogenised waste, which occurs with other forms of albuminous material. Consequently in skimmed milk there is a theoretically perfect, or nearly perfect, food for the diabetic. Many persons would hold that the fat in the form of cream would be a useful addition; but Dr. Donkin, on the authority of some experiments by Salomon, holds that glycogen can be formed from fat. In this he is in opposition to most physiologists. On the whole, the work is an useful one, and from its perusal most men would gain much information on a matter very imperfectly understood, but on which more widespread information is very desirable.

NEW INVENTIONS.

BARTLETT ON PEPSIN, PANCREATIN, AND OTHER AIDS TO DIGESTION.

Mr. H. C. Bartlett, Ph.D., F.C.S., sends us the following note.

The most important of all aids to the digestion of food must be those which most nearly approach in composition and action to the solvents provided for the purpose by a healthy state of nature. A very common-sense application of scientific research has

for many years past proved the feasibility of making up for any deficiency of gastric power in the more or less dyspeptic human creature, by obtaining a supply of the needed secretion from the more powerful digestive juices of some of the domestic animals slaughtered for food.

The successful treatment of weakened digestive power by the administration of pepsin is now too much appreciated, to admit any well-founded doubt as to its invaluable application to a large section of the vast number of cases of insufficient vigour of digestion and assimilation. But a not inconsiderable proportion of failures among the indiscriminate and capricious uses, in cases where it is, perhaps, less required than some of the other equally necessary agents to carry out the digestive processes, has not unlikely tended to retard the growing confidence in the judicious employment of really good pepsin.

As I have been engaged upon some of the original investigations of the normal peptic powers of various animal digestive fluids, some rather important questions have been lately submitted to me with regard to the popular use of pepsin, pancreatin, diastase or cerealin, and other natural aids to digestion. The first is, Can the public be trusted to discriminate among the several active principles of healthy digestive fluids, so as to select those which are most required in each particular case, and can non-professional purchasers form any estimate of the purity of the different samples, or of the quantities suitable to be taken? Careful consideration leads me to the belief that a concise, yet untechnical, description of the more important components of the fluids which cause a healthy digestion of food, together with the effects produced by each in this process, could enable persons of ordinary intelligence who may require them to make beneficial use of several of these aids to digestion. Moreover, if the exact strength of each article, and the proportions in which they are combined in the more complex preparations, were stated and guaranteed by the vendors, as is not always the case at present, a little experience would usually determine the quantity best adapted to the requirement from time to time.

Food is digested in the first place by the ptyalin or animal diastase of the saliva, which is the most considerable and active agent in the transformation of the large mass of starchy matters which form, or should form, three-fifths of the ordinary solid food. It must be remembered that, unless the starch be so transformed into glucose or sugar, it cannot be digested in the stomach in any appreciable degree, the constituents of the gastric juice, including pepsin, rather preventing than favouring this change into soluble saccharin and dextrin.

However important this transforming action of the diastase of the saliva upon starch may be, and its importance can hardly be overrated, it is only upon starch that this principle has any active chemical agency; neither emulsifying fat nor assisting in dissolving albuminous substances, except in so far as its secretion with a large amount of water and oral mucus mechanically aids the previous mastication.

Pancreatin and the active principles of the secretion of the bowel-glands are the only other portions of the digestive fluids which have any transforming influence over starch; and from some experiments, which I have not yet quite completed, there appears to be a great doubt if this action can be maintained

in the presence of a sufficient proportion of fat in the food to absorb the fluids of the pancreas and bowel-glands in forming that fatty emulsion which appears to be their proper function. If this be correct, as my results at present lead me to believe it to be, a counterbalance between any discrepancy of the proportions of the carbo-hydrates to the hydrocarbons in a mixed diet may be made up, not by chemical evolution as Liebig thought, but by the ordinary processes of digestion, in which the pancreatic and similar fluids may emulsify a too small proportion of fat in the food, and then expend themselves in transforming any starch which has evaded the action of the saliva.

Pancreatin has also been supposed to dissolve albumin under certain conditions; but this is not the case when the fluid containing it is fresh; the putrefactive decomposition of the albuminous portion of food, produced by already partially putrid pancreatin, can, therefore, have no relation to the healthy formation of peptones by pepsin; on the contrary, the evidence of such decomposition proves the necessity for greater peptic power in the stomach, followed by antiseptic treatment to arrest this dangerous condition.

Hence, we must depend mainly upon diastase, ptyalin, or cerealin for the conversion of starch, and upon the bile and pancreatic fluid for the absorption of fat, and especially upon the latter as an aid from without towards digestion of this essential constituent of food.

I now come to the composition of the gastric or stomach juice; and, without referring to its minuter ingredients, it will suffice to mention that to effect the due digestion of the nitrogenous or albuminous part of food, it must consist of a sufficiency of pepsin and acid salts, and be duly diluted with saliva from the mouth.

The absolute necessity for dilution with saliva was very curiously shown on performing tracheotomy on a dog, a bone being firmly wedged so as to completely close the oesophagus. No digestion of the meat in his stomach took place, although there was an abundant solution of acid salts and pepsin; neither did digestion commence on injecting distilled water into the stomach; but directly the bone was extracted, and the saliva again trickled down into the stomach, rapid digestion began.

The quantity of acid salts requisite for the solution of albumin, and their exact composition, need not be entered upon in this paper, as, in the event of these being insufficient to cause a vigorous action of the pepsin upon the albuminoids, medical advice must be obtained, and aids to digestion must be administered with critical acumen. But of pepsin it will be found that, in many cases of impaired digestion, where cheese and the harder portions of meat are sources of pain and inconvenience, and peas, beans, some of the most highly nitrogenous of vegetable foods, occasion the most unpleasant flatulence, a little good pepsin may be of great benefit.

Pepsin, as sold, unfortunately, is not even of an average equality of strength or purity. Some will dissolve nearly a hundred times its weight of coagulated albumin; other samples are not found equal to one-tenth of this power. Almost absolute purity can be, and is, attained in a few of its preparations, but in many it is lowered by admixtures of various kinds. The following analysis of a sample recently sub-

mitted to me affords a good example of this latter class.

Percentage composition.	
Moisture	10'20
Pepsin	20'00
Animal tissue, not pepsin	7'30 liable to cause putrefaction.
Starch	57'42 { cheap arrowroot, evidently added to increase weight and bulk.
Salts	5'15
	100'07

In continuing this subject, further illustrations of the preparations of pepsin, pancreatin, and other aids to digestion will be procured as sold, and the analyses will prove how far they may be depended on.



H. CALANTE
A. PARIS.



rectum nor in the *bas-fond* of the bladder. The flexibility of this ring also allows it to change its form temporarily, but its elasticity causes it to return to its circular form as soon as the peripheric pressure no longer exists. This peripheric pressure is infinitely varied according to the full or empty condition of the reservoirs of the pelvis minor, and according to the different movements of the patients. This ring pessary is very inexpensive, and will be found useful in all uterine displacements. M. Dumontpallier has applied it in a great number of cases, and always with the greatest success. Its introduction can be effected without the knowledge of the patient.

RECENT FRENCH BOOKS.

Published by A. Delahaye.

- Aphorismes sur les maladies vénériennes, suivis d'un formulaire magistral pour le traitement de ces maladies par le docteur Edmond Langlebert. 2e édition, revue et augmentée. 1 vol. in-16. Prix : 3 fr. 50.
- Étude sur la paralysie dans le mal de Pott, par le docteur A. Courjon. In-8. Prix : 2 fr.
- Quelques mots sur l'hygiène militaire, par le docteur Carrière. In-8. Prix : 1 fr. 50.
- Traité de l'acide phénique appliqué à la médecine, par le docteur Déclat. In-8 de 1,200 pages avec photographies.
- Quelques considérations sur la suppuration de la caisse du tympan, son traitement, par le docteur Y. Maffre. In-8. Prix : 1 fr. 50.
- Bottentuit (Dr. E.). Des Diarrhées chroniques et de leur traitement par les eaux de Plombières. 2e édit. Paris, 1875. Prix : 2 fr.
- Pathault (Dr. Louis). Des Propriétés physiologiques du bromure de camphre (camphre monobromure de Wurtz) et de ses usages thérapeutiques. Paris, 1875. Prix : 1 fr. 25 c.
- Balestre (Dr. Alb.). Du Rôle de l'inanition dans la pathologie. Thèse présentée au concours pour l'agrégation. In-8, 93 pages. Paris, 1875. Prix : 2 fr. 50 c.

RING PESSARY.

At the meeting of the Paris Société des Hôpitaux on August 13, 1875, M. Dumontpallier presented a ring pessary, which is a modification of that of Meigs of Philadelphia, and is also very similar to the pessary laid before the society by M. Gairal of Carignan, a description of which will be found in the *Bulletin Général de Thérapeutique*, vol. lxxxviii. p. 337. This ring pessary is composed of a very flexible, very elastic watch-spring, surrounded by a gutta percha covering. The inventor has thus obtained an extremely flexible ring pessary, which, no matter what shape it receives from pressure, always reassumes its original circular form. Hence, this ring may be introduced with the greatest ease, and when it has been placed *in situ*, its flexibility allows it to model itself on the parts with which it is in relation. Consequently it produces no annoyance, either in the

- Traité d'anatomie pathologique, par le docteur E. Lanceaux, professeur agrégé à la Faculté de médecine de Paris. Tome I. Anatomie pathologique générale. Gr. in-8, 528 pages, avec figures dans le texte. Prix de l'ouvrage complet, pour les souscripteurs, 18 fr. Paris, 1875.
- Berthier (Dr.). Des Névroses menstruelles ou la menstruation dans ses rapports avec les maladies nerveuses mentales. In-8, 288 pages. Prix : 5 fr.
- Bouyer (Dr. L.). Considérations nouvelles sur le traitement de la phthisie pulmonaire et sa curabilité. In-8, 90 pages. 1875. Prix : 2 fr.
- Brière (Dr. Léon). Étude clinique et anatomique sur les sarcomes de la choroïde et sur la mélanose intra-oculaire. Gr. in-8, 248 pages et 4 planches lithog. Prix : 5 fr.
- Cabrol (Dr.). Réforme hospitalière. Les villas sanitaires principalement en temps de guerre et d'épidémie. Les hôpitaux, leur rôle normal. In-8, 40 pages. Prix : 1 fr. 25 c.
- Charcot (J. M.). Leçons sur les maladies du système nerveux faites à la Salpêtrière. Recueillies et publiées par Bourneville. 2e fascicule : De la compression lente de la moelle épinière. In-8, avec grav. et planches. Prix : 2 fr.
- Clinique de Lourcine : Leçons professées par le docteur Alf. Fournier. Lésions tertiaires de l'anus et du rectum. Syphilome ano-rectal. Rétrécissement syphilitique du rectum. Recueillies et rédigées par Ch. Porak. In-8, 73 pages. Prix : 2 fr.
- Desplats (Dr. Henri). Des Paralysies périphériques. (Thèse pour le concours d'agrégation.) In-8, 99 pages. Prix : 3 fr.
- Defresne (Th., pharm. de 1re cl.). Recherches expérimentales sur le rôle physiologique et thérapeutique de la pancréatine. In-18, 103 pages. 1875. Prix : 1 fr. 50 c.
- Denucé (Dr. Paul). Des Fistules ossifluentes de la région anale, de la résection du coccyx et de ses indications. Prix : 2 fr.
- Des névroses diathésiques ou les maladies nerveuses dans leurs rapports avec le rhumatisme, la goutte, les dartres, la syphilis, le cancer, la scrofule, etc., par le docteur P. Berthier. In-8, 326 pages. 1875. Prix : 5 fr.
- Du Sarcocèle syphilitique. Recueilli et rédigé par A. Pichard. In-8, 48 pages. 1875. Prix : 1 fr. 50 c.

Dieulafoi (Dr. Georges). Des Progrès réalisés par la physiologie expérimentale dans la connaissance des malades du système nerveux. (Concours pour l'agrégation.) In-8, 187 pages. Prix : 3 fr. 50 c.

Du Castel. Des Températures élevées dans les maladies. (Concours pour l'agrégation.) 89 pages et 4 pl. Prix : 3 fr.

Lissonde (Dr. L.). Du Chloral hydrate. Étude chimique, physiologique et thérapeutique. In-8, 108 pages, gravures. Prix : 2 fr. 50 c.

Malassez (Dr. L.). De la numération des globules rouges du sang. 1. Des méthodes de numération. 2. De la richesse du sang en globules rouges dans les différentes parties de l'arbre circulatoire. Prix : 2 fr.

Manouvriez (Dr. A.). Recherches cliniques sur l'intoxication saturnine locale et directe par absorption cutanée. In-8, 84 pages. Prix : 2 fr.

Mauriac (Dr. Ch. D.). Du psoriasis de la langue et de la muqueuse buccale. In-8, 98 pages. 1875. Prix : 3 fr.

Rathery (Dr. F. R.). Des Accidents de la convalescence. (Concours pour l'agrégation.) In-8, 167 pages. Prix : 3 fr. 50 c.

Renaud (Dr. J.). De l'Intoxication saturnine chronique. In-8, 198 pages. Prix : 4 fr.

Rendu (Dr. Henri). Des Anesthésies spontanées. (Concours pour l'agrégation.) In-8, 181 pages. Prix : 3 fr. 50 c.

Reynaud (Dr. Ch.). Étude sur les kystes du maxillaire inférieur. In-8, 86 pages. Prix : 2 fr.

Silphium Cyrenaicum (le). Ce qu'il est, ce qu'il n'est pas, par un explorateur de la Cyrénaïque. (Signé : H. Derodes, ph. de 1^{re} cl.) In-8, 12 pages. Prix : 50 c.

Truchot (Dr. P.) et Fredet (Dr. G. E.). De la Lithine dans les eaux minérales de Royat et dans les principales sources thermales d'Auvergne. In-8, 47 pages avec 1 pl. Prix : 1 fr. 50 c.

Traité des opérations d'urgence, par le professeur Louis Thomas. 1875. Prix : 7 fr. 50 c.

Published by Baillière and Sons.

Böeckel (Dr. Eug.). De la Galvano-caustique thermique. 1 vol. gr. in-8 de 116 pages, avec 2 planches lithographiées. Prix : 3 fr. 50 c.

De la Fièvre typhoïdique, par le docteur J. Lucas-Championnière (médaillé d'argent). 1872 ; in-8, de 178 pages. Prix : 3 fr. 50 c.

De la Régénération des organes et des tissus en physiologie et en chirurgie, par Demarquay. 316 pages, avec 4 pl.

Des Paralysies bulbiaires. Thèse présentée au concours pour l'agrégation, par le docteur Hallopeau. In-8 de 152 pages, avec une planche lithographiée. 1875. Prix : 3 fr. 50 c.

Épidémie et Contagion. De la Variole et de la Vaccine. Lettres adressées à M. le docteur Ch. Girard par E. Chairou. 1 vol. in-8 de 64 pages. Prix : 1 fr. 50 c.

Étude de Physiologie thérapeutique, Effets physiologiques et thérapeutiques des Aliments d'Épargne ou Antidépensifs, Alcool, Café, Thé, Coca, Maté, etc., par le docteur Angel Marvaud. In-8 de 222 pages. Prix : 3 fr. 50 c.

Histoire de la chirurgie française au XIX^e siècle, étude historique et critique sur les progrès faits en chirurgie et dans les sciences qui s'y rapportent, depuis la suppression de l'Académie royale de chirurgie jusqu'à l'époque actuelle, par le Dr. Jules Rochard. 1 vol. in-8 de XV—896 pages. 1875. Prix : 12 fr.

L'Herpétisme, pathogénie, manifestations, traitement, pathologie expérimentale et comparée, par le docteur L. Gigot-Suard, médecin consultant aux eaux de Caudebec. Prix : 8 fr.

Traitements de l'angine couenneuse par les balsamiques. Mémoire présenté au Conseil général de la Mayenne, par M. H. Trideau. 1 vol. gr. in-8 de 150 pages. Prix : 2 fr.

Traité des fièvres intermittentes, par Léon Colin. 1 vol. in-8 de 600 pages avec un plan. 1870. Prix : 8 fr.

Traité des fistules uro-génitales de la femme, comprenant les fistules vésico-vaginales, vésicales cervico-vaginales, uréthro-vaginales, vésicales cervico-utérines, urétéro-vaginales et urétérales cervico-utérines, par L. Deroubaix. 1 vol. in-8 de XIX—823 pages, avec figures. Prix : 12 fr.

Traité des maladies des yeux, par X. Galezowski, professeur d'ophtalmologie à l'École pratique de la Faculté de Paris. 1^{re} partie. 1 vol. in-8 avec 226 fig. Prix de l'ouvrage complet : 18 fr.

Published by Germer-Baillière.

Amussat Fils. Traitement du cancer du col de l'Utérus par la galvano-caustique thermique. In-8 de 52 pages. Prix : 75 c.

Effets et influences de la musique sur la santé et sur la maladie, par le docteur H. Chomet. 1 vol. in-8. Prix : 3 fr.

La Mort des rois de France, depuis François 1^{er} jusqu'à la révolution française. Études médicales et historiques, par le docteur A. Corlieu. 1 vol. in-18. Prix : 3 fr. 50 c.

L'Œvotomie abdominale ou Opération césarienne, par le docteur Baudon, lauréat de l'Académie de médecine de Paris. 1 vol. in-8 de 230 pages. Prix : 4 fr.

Pau. Étude de météorologie médicale au point de vue des maladies des voies respiratoires, par M. le docteur R. Lahillone. Brochure in-8 de 58 pages, accompagnée de 5 tableaux. Prix : 2 fr. 50 c.

Published by G. Masson.

Poncet, Fr. (de Cluny). Recherches d'anatomie pathologique oculaire sur un cas de choroïdite purulente avec décollement de la rétine (Mémoire couronné par la Société de médecine du Nord. Lille, 1875. In-8, 35 pages, avec 6 planches. Paris.

Guérit-on la phthisie—Par quels moyens? par le docteur Raoul le Roy. 1 vol. in-8 de 186 pages. 1875. Prix : 5 fr.

Published by P. Asselin.

Traité d'anatomie topographique, avec applications à la chirurgie, by P. Tillaux, directeur des travaux anatomiques de l'amphithéâtre des hôpitaux de Paris. Premier fascicule : de la tête, 400 pages gr, in-8, avec 106 figures tirées en noir et en couleur et intercalées dans le texte. Prix : 7 fr. 50 c. Paris, 1875.

De l'Œsophagotomie externe, par le docteur L. Félix Terrier. Prix : 3 fr. 50 c.

Les anomalies dans le parcours des nerfs chez l'homme, par N. Krause et J. Tilgmann ; traduit par S. H. De la Harpe. 1 vol. in-8 de 70 pages. Prix : 2 fr.

Mélanges de pathologie comparée et de tératologie, par le docteur O. Larcher. In-8, avec planches. Prix : 2 fr. 50 c.

Published by Berger-Levrault and Co.

Herrgott (Dr. F. J.). De l'oblitération du vagin comme moyen de guérison de l'incontinence d'urine dans les grandes pertes de substance de la vessie. Discussions soulevées par cette méthode opératoire devant l'Académie de médecine en 1845 et 1875. In-8, III et 21 pages. Paris, 1875.

Injection d'eau dans la cavité péritonéale comme traitement de la péritonite aiguë, par A. Netter, officier de la Légion d'honneur, ancien médecin principal de l'armée, bibliothécaire de la faculté de médecine de Nancy, lauréat de l'Académie des sciences, etc. Brochure in-8 de 32 pages. Prix : 1 fr. 50.

RECENT GERMAN BOOKS.

Published by August Hirschwald, in Berlin.

Klinik der Rückenmarks-Krankheiten. Von Dr. E. Leyden. Zweiter Band. Erste Abtheilung. Mit 6 lithogr. Quart-tafeln in Farbendruck.

Gerlach (Prof. A. C.) Die Fleischkost des Menschen vom sanitären und marktpolizeilichen Standpunkte. 1875.

Gurlt (Prof. Dr. E.) Die Kriegschirurgie der letzten 150 Jahre in Preussen.

Jerusalimsky (Dr. N.) Ueber die physiologische Wirkung des Chinin. 1875.

Neumann (Dr. H.), in Pöpelwitz. Der Process Kullmann. Gerichtsarztliche Reflexionen. 1875.

Schultze (Prof. Dr. B. S.) Ueber die pathologische Anteflexion der Gebärmutter und die Parametritis posterior. Mit Vorbemerkungen über die normale Lage der Gebärmutter. 1875. gr. 8. Mit 20 Holzschnitten.

Wegscheider (Dr. H.). Ueber die normale Verdauung bei Säuglingen. 1875.

RECENT ITALIAN BOOKS.

Bianchetti, Dott. Gualtiero. Sopra un caso di gastrite flemmonosa : osservazioni. Padova, 1875.

Ferrari, Dott. Primo. Relazione statistico-clinica e politica del sifilismo di Perugia. Anno 1874. Perugia, 1875.

Giacchi, Dott. Oscar. L'isterismo e l'ipocondria, ovvero il mal nervoso, ec. Milano, 1875. Prezzo lire 1.50.
 Maragliano, Dott. Edoardo. Il dicortismo ed il policortismo. Studi sperimentali. Bologna, 1875. Prezzo lire 2.
 Pellegriani, Dott. Giovanni. Relazione sulla difterite che ha dominato nel Comune di Massa e Cozzile dal dicembre 1871 all'aprile del 1875. Pescaia, 1875.
 Santopadre, Prof. Ferdinando. Le paralisi della vescica orinaria e loro cura elettrica. Bologna, 1875.
 Tivroni, Dott. Guido, e Chioconni, Dott. G. B. Ricerche sperimentali sull'Jaborandi. Osservazioni fatte nell'ospedale di Pisa. Bologna.
 Uffreducci, Dott. Achille. Annuario di terapeutica, materia medica, farmacia e tossicologia pel 1875, ec. Anno I. Napoli, 1875. Prezzo lire 1.50.

MISCELLANY.

M. BOUILLAUD has resigned his chair as Professor of Clinical Medicine in the Faculty of Paris. The eminent professor will still, however, continue to practise and to take part in the discussions of the Academy of Medicine and the Academy of Sciences.

ACCORDING to the *Academy* there exists in St. Mark's Library, at Venice, a MS. in the handwriting of John Locke, consisting of notes on medical subjects, which, our contemporary observes, is the more curious if, as has been said, Locke was averse from allowing it to be known that he once intended to practise medicine.

ANATOMICAL AND PHYSIOLOGICAL PREPARATIONS.—Messrs. Coles, Sons, of Liverpool, well known as preparers of Diatomacea, have recently undertaken the preparation of pathological and physiological sections for the microscope. We have seen some of their injected preparations, including some which have been made for Dr. Braidwood, of Birkenhead, and we can speak of them in high terms.

'MAGNA EST VERITAS.'—The latest intelligence concerning Louise Lateau, the so-called mystic of the Bois d'Haine, is that she no longer bleeds and that her stigmata have disappeared, since one of her sisters has taken up her abode with her and resolutely closed the door against all visitors. The *Presse Belge* adds that Louise Lateau, who, according to the Roman Catholic journals, took no food whatsoever, now displays a remarkably good appetite.

MEDICAL STUDENTS AT THE GERMAN UNIVERSITIES. The statistics of the German universities for the summer semester of the years 1874 and 1875 show a diminution in the numbers of the medical students for the present year. The number has fallen from 6,190 to 6,039. The *Gazette Générale*, whilst recording the fact, accounts for it by stating that at the present time the Jewish students apply themselves to the study of jurisprudence, whilst in former times, the legal career being to a great extent closed to them, a great number of them embraced the medical profession.

INFANT MORTALITY IN NEW YORK.—In the course of a discourse delivered at a Ladies' Aid Society in New York, Dr. Stephen Smith of that city made the startling statement that, on an average of years of all the persons who die annually in New York, about one half are children under five years of age. To be more exact, in 1872 32,647 deaths were recorded officially; of these 16,188 were under five years of age, the latter being 49.58 per cent. of the former. He analysed the causes of this excessive destruction of infant life in the course of his remarks, which are published in the *Sanitarian* for October. They reveal a state of things amongst the poor of New York, which Dr. Smith seeks to remedy by the help of ladies, who will visit the neglected homes of these neglected people as sanitary missionaries.

It is with regret we chronicle the death of Dr. Duchenne, of Boulogne, which took place on September 18, from the effects of an attack of apoplexy. Dr. Duchenne was well known to the medical profession by his remarkable labours on the application of electricity to the diagnosis and treatment of the diseases of the muscular and nervous systems.

A NEW SCHOOL OF ANATOMY.—We are informed that Mr. Thomas Cooke, senior assistant surgeon to Westminster Hospital, widely known as the author of the useful *Tables of Anatomy*, has opened a private school of anatomy. The school has been duly licensed for dissections, and Mr. Cooke's ability as a teacher of anatomy will, doubtless, be found of the greatest utility to those students who desire to supplement the anatomical knowledge they are required to obtain at the recognised medical schools.

MEDICAL EXAMINATIONS IN PARIS.—Preparatory conferences for the third and fourth examinations for the Doctorate, and for the first terminal annual examination (*1er examen de fin d'année*), are conducted at the Laboratory Gay-Lussac. They will be opened on October 20 at 3 P.M., and will be continued on the following Mondays, Wednesdays, and Fridays. The subjects treated are: the recognition of plants and medicines; principal reactions, and chemical experiments. Entries may be made at the Laboratory, No. 10 Rue Gay-Lussac, on Mondays, Wednesdays, and Fridays, from 2 to 3 P.M.

THE MEDICAL EDUCATION OF WOMEN.—The professors of Queen's College, Birmingham, by a majority of nine to three, have passed a resolution to the effect that they cannot undertake the medical instruction of women students. This resolution, it is stated, was based on the objection that the admission of women would endanger the college as a school for male students, many of the latter having intimated their intention to withdraw if women were admitted. The resolution of the professors was communicated to the college council, who have since unanimously resolved to decline to admit women students to the institution.

UNIVERSITY OF PENNSYLVANIA.—The late John H. Towne, of Philadelphia, in his will made a large addition to the endowment fund of the University of Pennsylvania. After making liberal provisions for his family and relatives, he bequeathed 10,000 dollars to the University Hospital; and after various other bequests to the Pennsylvania Academy of Fine Arts, to the Academy of Natural Sciences, etc., he constitutes the trustees of the University of Pennsylvania residuary legatees of the remainder of the estate—probably 300,000 dollars. The university has also a reversionary interest in the estate, which may ultimately make the total bequest upwards of one million dollars. The money thus bequeathed is to be held as a portion of the endowment fund of the university, and the income is to be applied solely to the payment of salaries of professors and other teachers in the department of science.

ORIENTAL CLEANLINESS AND WESTERN CIVILISATION.—Dr. J. H. Davidson, in an account of 'A Visit to a Turkish Lunatic Asylum,' published in the current number of the *Journal of Mental Science*, makes the following statement on this point. The physician superintendent of the asylum of Constantinople, from whom he obtained some interesting information respecting the care and treatment of the insane by the Turks more than three centuries ago, remarked to him that the love of the bath and of personal cleanliness shown by the Mahommedan patients contrasts strangely with the aversion exhibited to all ablutionary processes by the few Christian inmates of the asylum, who, by their education and knowledge, generally belong to a much superior class of society. On the other hand, personal cleanliness being strictly commanded by the laws of Islamism, the Mahommedan patients never, or very rarely, manifest the slightest reluctance to the bath, but rather the contrary.

ANATOMICAL MICRO-PHOTOGRAPHS.—The *Monthly Microscopical Journal* mentions that, at the meeting of the British Association, Mr. H. B. Brady exhibited a series of photographs, chiefly from physiological and pathological preparations, taken by a new and simple process devised by Mr. Hugh T. Barman, of Newcastle. The apparatus was also shown, and described to consist of a simple mirror of spectrum metal placed at an angle of 45° , in front of the eye-piece of the microscope directed downwards. The image was received upon a collodion plate set in the frame of a common photographic camera, and photographic copies taken in the usual way. About eleven seconds were stated to be a sufficient exposure for the purpose.

A NEW FOOD.—A society of rat-eaters has been formed at Gembloux in Belgium. The members meet once a week, and the proceedings are wound up by a grand (?) banquet, in which preparations of that delicious animal held a prominent position. This society, following the example of the Hippophagic Society, wishes to destroy the prejudice attached to the flesh of these little animals. In the furtherance of this object, a learned Belgian has been at the pains to discover that the ancient Romans formerly ate grey mice seasoned with acorns and chestnuts. Buffon relates that the inhabitants of Martinique eat mice, and are especially fond of musk-rat. A species of rat called the climbing rat likewise forms a large item of food at Cuba.

PHYSICAL EDUCATION OF THE YOUNG.—In a recent address to the pupils of Amherst College, Dr. Nathan Allen, of Boston, stated that it was almost twenty years since the question of doing something to promote the health of students in college was first agitated and discussed, at the meetings of the board of trustees. This resulted in the erection of the gymnasium in 1859, and the establishment of the department of physical culture and hygiene. Since that time fifteen classes had entered college, and more than three thousand students had taken part in these exercises. It had proved a great success, as was shown by the contrast between the health of the students at the present and their condition before the system was adopted. It has had its influence both in the discipline and in the scholarship of the college. It has been made one of the required exercises, and excellence in this department plays a part in determining the rank of the student.

A NATURAL RESULT.—The *Liverpool Courier* of September 13, states that the other day Mr. C. W. Hodgkinson, horse-slaughterer and grease-manufacturer, received at his works, near Sandhills station, a horse which had just died from an obstruction in the bowels. On a *post mortem* examination, Mr. Hodgkinson discovered in the colon the following articles; eleven hundred nails, ranging from about half to an inch and a-half in length, a quantity of small screws, buttons, curtain-hooks, and other miscellaneous items of a scarcely more digestible kind. It is not known how the horse obtained such appetising morsels, but probably from often feeding in close proximity to a nail-manufactory, or an ironmonger's establishment. That the foreign ingredients had been in the poor beast's intestines for a considerable period, was proved by the fact of their having been worn smooth and thin by the friction to which they were subjected. It appears that Hodgkinson has preserved the nails, screws, curtain hooks, etc., for the inspection of the incredulous.

THE HOPKINS UNIVERSITY.—Mr. Jonas Hopkins, a rich citizen of Baltimore, has lately died, and after providing for his relatives and leaving various minor benefactions, has bestowed the chief part of his estate to found a university with an affiliated medical school and hospital. Both the university and the hospital receive separate landed and other property, of such a substantial character that the value of the total amount is over three millions of dollars. Each institution is to be controlled by a board of nine trustees, and the same persons are to be on both boards.

The university will have no ecclesiastical or political character or supervision, and will be modelled as far as possible after all that is best in similar American and European institutions. It is intended to give the highest instruction that can be obtained, and the trustees are to act in accordance with the most enlightened experience of the day. The scientific and literary departments will first be organised, and then will follow the departments of Medicine and Law. No permanent buildings will be erected till all the Faculties are in working order and the wishes of each professor can be carried out; meanwhile a building has temporarily been secured in Baltimore, on the outskirts of which city are the grounds Mr. Hopkins has left for the hospital and university which in future will bear his name. The trustees have already selected the President of the University, and have found an admirable head in Mr. Henry Gillman, formerly the Principal of the San Francisco University. Mr. Gillman is now in England maturing his plans and gaining information from various universities in Europe. Only one chair has yet been filled, namely, that of Mathematical Physics, and to this Mr. H. A. Rowland has been appointed. It is hoped that students will be received in 1876.

UNIVERSITY OF CAMBRIDGE.—The Board of Natural Sciences Studies have issued the following notice with regard to the examination for the Natural Science Tripos for 1876 and following years. The notice is issued in lieu of the schedules dated May 15, 1871, which are withdrawn:—
'In the papers set in the first three days (in June) the questions in all the subjects will be of a comparatively elementary character, and will be such as to test a knowledge of principles rather than of details. Specimens may be exhibited for description and determination. In physics the questions will be limited to the elementary and fundamental parts of the subject, and, in particular, special attention will be paid to the definition of physical quantities, the general principles of measurement, the configuration and motion of a material system, the laws of motion, and the comparison of forces and of masses. In sound, light, heat, electricity, and magnetism, only the fundamental laws, their simpler applications, and the experiments which illustrate them, will be required. In chemistry the questions will relate to the leading principles and experimental laws of chemistry, the properties of the commoner elements and their principal inorganic compounds, the outlines of metallurgy, and simple qualitative and quantitative analysis. In mineralogy the questions will be confined to elementary crystallography, the general properties of minerals, and the special characters of those species only which are of common occurrence. In geology the questions will be limited to physical geography, the interpretation of the structure of the crust of the earth and the history of its formation, so far as to involve only the elementary parts of paleontology and lithology. In botany the questions will relate to the elementary parts of vegetable morphology, histology, and physiology, and to the principles of a natural system of classification. Candidates will be required to describe flowering plants in technical language. Questions will not be set in the first three days on vegetable paleontology, the geographical distribution of plants, or details of classification. In zoology with comparative anatomy minor details will not be included in the questions relating to classification. Geographical distribution of animals is held to be a part of zoology, and comparative anatomy includes the structure of extinct as well as of recent forms. In physiology the questions will be of a comparatively elementary character.' The range of questions in the second part of the examination for the Tripos is not defined. The Board of Medical Studies for the guidance of students proceeding to medical degrees have issued schedules defining the range of the examinations in chemistry and other branches of physics, botany, and comparative anatomy. The schedules are of considerable length, and are published in the *University Reporter*, which can be obtained of the University publishers, Deighton, Bell, and Co.

The London Medical Record.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE SEMEIOLOGY OF CHILDREN'S DISEASES. BY DR. A. CUZZI, ASSISTANT IN THE CLINICAL DEPARTMENT OF THE OBSTETRIC INSTITUTION OF TURIN.*

Gentlemen,—We yesterday ended the study of manual midwifery; and to-day I will satisfy the wish which you have expressed to me, by treating briefly of the general pathology of early infancy. Hufeland, in his treatise on Practical Medicine, the fruit of fifty years' experience, has said that the diseases of infancy are of the highest importance, since a third of the sick are children, and their diseases present a particular character. These diseases assume a special aspect from the great mortality which attends them; according to Roger, of five infants one dies in the first year of life; and at the end of the fifth year the mortality amounts to 33 per cent.

Hufeland divides childhood into three periods:

1. From birth to the first dentition.
2. From the first dentition to the seventh year.
3. From the seventh year to puberty.

The greatest mortality occurs in the first of these periods; the least in the last.

Another classification of the diseases of children may be derived from their nature and character. Thus we have:

1. Diseases proper to this age (umbilical erysipelas, and sclerema, hydrocephalus, tongue-tie, rickets).
2. Diseases which are rare in adults, but which on the contrary are very frequent in children (convulsions, contractions, whooping-cough, eruptive fevers, croup, scrofula, etc.)
3. Diseases which assume a particular impress (tuberculosis, which tends to become generalised, meningitis, which is granular, pneumonia, which instead of being lobar is lobular.)
4. Slight diseases which appear to be severe (ephemeral fever, with a temperature of 105° Fahr.), and severe diseases with slight symptoms (diseases of the heart, etc.)

I will divide the study which we are making into two parts; in the first I will speak of the physiological modifications which occur in the infant, and in the second of infantile semeiotics.

Physiological Modifications.—At the moment of birth, when the umbilical cord has been divided, a new and independent life commences for the child; hitherto a parasite on its mother, it now has to live an isolated life. Incapable of providing for its own wants, sensibility and the instinct of sucking are the most developed faculties which it possesses. It grows rapidly; assimilation and hæmatosis are carried to a high degree, which explains the frequency of diseases of the digestive passage and of

the pulmonary apparatus. When I speak of the etiology of the diseases of infancy and of the temperature of children, I will point out to you the importance of cold as a very frequent cause of disease at this age. I will here only remind you that the foetus in the uterine cavity lives in an uniformly elevated temperature; but scarcely has it come to the light when its delicate organs are under the influence of cold, and of all the other external agents, and hence the readiness with which conjunctivitis, bronchitis, etc. occur. A little later, when the first smile and the first tears begin to appear (at two or three months), and when the brain begins to perform its functions, as indicated by the few connected words (at two years) or entire phrases (at three years) which the child learns to pronounce, the very delicate structure of the nervous centres will explain to us the frequency of convulsive diseases. It is only from the fifth or seventh year that memory and attention are manifested, and the child learns to read. I will speak to you at the proper time of dentition and the disturbances of health which it produces; but there is another still more potent cause of disease, that is to say, weaning. A sudden change in the kind of food is the habitual origin of those enteric affections which decimate children, especially among the poor classes.

I will now examine the physiological modifications a little more in detail.

1. *Circulation.*—I will not describe the foetal circulation; you know that the placenta acts as lung, intestine, and kidney. The umbilical cord having been tied, the placenta ceases to perform its functions, and the blood is carried to the lungs, abandoning the course through the ductus arteriosus. From the lungs, the blood arrives at the left auricle, distends it, and increases the internal pressure, the effect of which is to render the foramen ovale imperious. It is to the dilatation of the chest and to the increase of blood-pressure in the left auricle that the physiological changes in the circulation must be attributed.

2. *Lacrymal Secretion.*—The function of the lacrymal gland, according to Darwin, remains in abeyance until the third month, up to which time the cries of children are not accompanied by tears. Hence, in the early months, we cannot recognise the prognostic value attributed by Coën to the cry, viz., that when accompanied by tears, it indicates a slight malady; but if there be a cry without tears, the disease is a severe one.

3. *The nasal secretion* is scanty but thick and glutinous, adhering easily to the parts with which it comes into contact; hence the frequent occurrence of irritation, and the formation of crusts on the upper lip in the neighbourhood of the nostrils.

4. *The sweat* is scanty. It appears in children affected with fever, but may, perhaps, be regarded as a moisture of the skin rather than true sweat. Sometimes, however, true drops of sweat are found on the face and neck; I have sometimes seen this.

5. On the *hairy scalp* scurf collects easily, combined with dust, epidermic scales, etc., whence arise incrustations through neglect. Attention to cleanliness, oilyunctions, and washing with soap, are sufficient in the greatest number of cases.

6. *The salivary secretion* begins to appear very soon after birth (Korowin), but in small quantity; it increases after the first month, and at the fourth it escapes at the commissures of the lips. In the aphorism, *Prima digestio fit in ore*, the ancients cer-

* Concluding lecture of the Course of Obstetric Operations. (*Gazzetta delle Cliniche*, July 13, 20, and 27, 1875.)

tainly desired to point out the importance of the saliva in digestion, without, however, knowing its chemical and physiological properties. For this knowledge we are indebted to Mialhe and to Bernard. According to Korowin, the diastatic properties of saliva already exist at birth, and increase up to the eleventh month, when it is as powerful as in the adult; while Bidder, on the contrary, maintains that the diastatic properties are not manifested until the time of the first dentition. Korowin's opinion is probably the more correct one.

7. The *gastric and intestinal secretion* exists and performs its function in foetal life, as has been recently proved by Professor Moriggia. The meconium found at birth in the lowest part of the intestine seems to be composed of epithelial cells, of a small quantity of pancreatic juice, of mucus, of amniotic fluid, of cutaneous *vernix caseosa*, of epidermoid cells, and of bile, which gives the whole a green-brown colour. In the infant, digestion consists in the saccharification of starchy matters, in the transformation of the albuminoids into peptones, and in the emulsionising of fats by means of the special principles of the digestive juices (diastase, pepsin, pancreatic juice, bile). The residuum of digestion, the fæces, are capable of affording us useful information in children's diseases; in the normal state they have a yellow brown colour, and a characteristic odour which they begin to acquire in the neighbourhood of the ileo-cæcal valve. If the bile be wanting, the excrements acquire an intolerable putrid odour, and remain uncoloured as in the dog. Thus it seems that the bile acts on the fæces as an antiputrescent and colouring substance. The following materials enter into the composition of the fæces of the infant: the remains of food not acted on by the digestive juices, or which is not absorbed although digested; the intestinal mucus; the products of secretion by the digestive glands; and gases, among which, according to Ruge, hydrogen predominates if the diet be exclusively of milk; in the opposite case, carbonic acid.

8. The *urinary secretion* is abundant in the unweaned infant, and becomes more scanty when lactation has ceased. It is of rather low specific gravity, and not much coloured; but it is rich in urates, and, according to some, in consequence of the renal circulation not being as yet slow, the urine of a newly born infant contains urates. I do not think this opinion absolutely correct, since, in about fifteen cases in which I drew off the urine by the catheter very soon after birth, in two only did I find traces of albumen. In order to guard against error, I employed not only the test with heat and nitric acid, but also Millon's reagent. Nocturnal incontinence of urine is frequent in infants, and in some cases resists all treatment; in meningitis, on the contrary, there is retention. It is rare to find foreign substances (such as blood and sugar); albumen, however, generally appears in scarlatina. It is unnecessary to say that in febrile diseases the urine becomes high-coloured and scanty, assuming the characters of febrile urine in the adult.

9. The diseases of infancy generally arrest development. The organism of the infant has a marked tendency to increase in weight and in length; and this increase occurs in a sufficiently regular manner to allow us to establish an average; forty-eight centimètres of length and 3,000 grammes of weight appear to be the numbers which indicate the average dimensions of children at birth in our country. In

order to estimate exactly the growth of infants, we ought to take into account race, sex, hereditary influence, and hygienic conditions; but this would require us to enter too much into detail. The increase in length appears to be eighteen centimètres in the first year; nine centimètres in the second; eight centimètres in the third; sixty-five millimètres in the fourth; fifty-five millimètres in the fifth; and so on up to the age of fifteen. In the first days of extra-uterine life the weight diminishes, and at the end of the second day there is a loss of about 100 grammes. This loss is very soon compensated; at the end of the first week the weight has reached the original figure; it goes on increasing by twenty to twenty-five grammes a-day during the first five months, and by ten to fifteen grammes a-day from the sixth to the twelfth month. The weight is tripled in the first year; according to Tourdes, the child seven years old is five times as heavy, and according to Quetelet seven times as heavy, as at birth.

10. *Closure of the Anterior Fontanelle*.—This fontanelle presents a space which remains constant during the first three months of life, increases during the next six months, decreases from the ninth to the twelfth month, and is closed in the next three months. The mechanism of the early increase and subsequent closure of the anterior fontanelle has been studied with precision. Three bones with four edges enter into its formation. For every millimètre of deposit of osseous substance on the edges which tends to cause the closure of the fontanelle, there is a millimètre of increase in the length of the edges; and, the bones being three in number and the edges four, the fontanelle will not close until the cranial sutures have become united. The anterior fontanelle allows the increase of the cranial cavity, and thus acts as a safety-valve, avoiding compression of the cerebral mass, which, from a weight of 500 grammes at birth, increases to 750 grammes at the end of the first year.

The anterior fontanelle projects in cerebral hyperæmia and in hydrocephalus, is depressed in atrophy, is closed later in rickets, etc.

In spite of the endeavour of Dr. Fischer, of Boston, cerebral auscultation (which is practised by placing the ear or the stethoscope over the great fontanelle) has not come into favour, because the results obtained by it are almost *nil*. Besides the sound produced by the entrance of air into the nasal fossæ, and that of deglutition, there is heard a systolic soufflé, generally mild in character, which has been called the cephalic soufflé, and is said to be peculiar to chronic hydrocephalus, but is not constant. Another cephalic soufflé is perceived in anæmia, coincident with the soufflé produced in the vessels of the neck, and is probably nothing but a murmur propagated from that region.

11. The last of the physiological modifications which we have to examine is *Dentition*. [The dental formulæ of man, and the periods of eruption of the teeth, are here given.] The eruption of the teeth does not always follow the order laid down; it is not rare to see one of the groups of teeth slow in appearing, and in certain cases we see various accidents arise which it is well to know, because they sometimes assume a peculiar gravity. These accidents are in the first dentition, general and local; in the second, purely local.

Local Accidents of the First and Second Dentition. The gums may become inflamed during the first eruption of teeth; and this may be accompanied by

the series of symptoms to which is given the name of dentition-fever; it is continuous or intermittent, sometimes with sleeplessness, crying, and restlessness; sometimes with depression and somnolence. The gingival inflammation may be the starting-point of phlegmonous periostitis. In the second dentition the local accidents (neuralgia, periostitis) almost always appear during the eruption of the third large molar, especially the lower one.

General Accidents of the First Dentition.—These accidents are due to the reflex action of the nerves, and also to the state of weakness in which infants generally are at this time of life, which renders their nervous system more susceptible. The most dangerous of these accidents (convulsions, ophthalmia, inflammations of the digestive or respiratory apparatus) are convulsions, which in certain cases of great severity may prove fatal by asphyxia, by syncope, by cerebral congestion, etc., or be followed by paralysis of one of the senses or of a limb. I believe, however, that the cases which present so great severity are rare.

Infantile Semeiotics.—The clinical examination of an infant is attended very often with serious difficulties, through its want of reason, through its defective intelligence, through its crying, and through its agitation when it sees the physician. Hence a rigorous examination of the persons surrounding the little patient ought never to be passed over, in order to complete the description of the symptoms, which are often defective and incomplete. It is to the mother that we should in preference direct our inquiries, since in her maternal love develops the spirit of observation; otherwise, an attentive and intelligent nurse will be able to furnish the information which we require.

If the sick infant be not more than three months old it easily allows itself to be examined, and does not offer any resistance; but at the same time it cannot furnish indications of any kind, and the physician then finds himself in the condition of the veterinarian; if, on the other hand, the infant be more than three months old, we may certainly be able to gain from it some information regarding the previous or present state of its disease; but in the greatest number of cases it resists examination and is frightened at our presence. Hence it is necessary for us to win its confidence, a task all the more difficult when the child lives a family life, retired from society, so as not to be accustomed to the sight of strangers. On this point authors give us special rules as to the *modus faciendi*, rules which, as they are sufficiently well laid down in the additions which Sonsino has made to Galligo's treatise, it is unnecessary for me to describe in detail.

On first entering the chamber, if the child be awake, the physician should appear to take no notice of it, and should at first interrogate the persons surrounding the little patient. He should always direct his questions so as to obtain information on the following particulars.

1. The state of health of the parents, the age at which conception occurred, and whether the marriage was consanguineous (Mantegazza), and the strength of the child at the time of birth. All these inquiries should be made with great prudence; it is unnecessary to state the motive.

2. Whether the child has already suffered from those infantile diseases which leave a certain immunity (scarlatina, measles, etc.); whether it has been vaccinated and with what result.

3. Cold being one of the most potent causes of diseases of infants (of which we shall see the reason when we speak of temperature), the physician will endeavour to ascertain if this cause has acted in the case in question.

4. He must learn where, how, and when the illness was first manifested, what remedies have been used, and with what result.

5. He must bear in mind the liability of infants to complications and successions of disease (as where laryngitis passes by continuity of tissue into bronchitis, and this into pneumonia, etc.), and must also notice the prevailing type of disease.

These particulars having been collected, we come to the examination of the present condition. We will examine the infant in the state of rest, or while sleeping, and in the state of activity; passing in review the various functions in place of following the method of examining *a capite ad calcem*, because it is too long, and the infant easily becomes tired. We will commence with the external aspect, passing then to the study of the pulse, the temperature, the respiratory organs, the digestive apparatus, and the nervous system.

External Aspect.—This may be divided under three heads: the attitude, the physiognomy, and the external surface of the body.

a. The *attitude* of an infant is best examined during sleep. During the first days of life, it tends to assume an attitude analogous to that which it had in the uterine cavity; later, it assumes indifferently almost any position, so that the articular ligaments are relaxed. The infant should be lightly covered, so that it may not be awakened when we wish to examine it. Certain diseases oblige it to assume a certain position. 1. If it be threatened with asphyxia (from pulmonary disease, etc.) the trunk is raised, and the infant endeavours to sit in the bed in order to allow the respiratory muscles better action. 2. If it be affected with febrile disease, the infant is agitated, as if it wished by its movement to disperse the superabundant heat which is generated in its organism. 3. If the disease be painful, there is immobility. 4. In typhoid affections, a lateral or pendulum motion of the head is sometimes observed, the fixed point being at the occiput, which rests on the pillow. 5. In spinal meningitis, the head is buried in the pillows by the contraction of the spinal muscles. 6. In hydrocephalus, and in meningo-encephalitis, the infant carries its hand to the head, the seat of its suffering, as if it wished to pull at its hair. 7. During the eruption of the teeth, it puts the fingers, or any object it has in its hands, into its mouth. 8. In rachitis, the infant cannot sleep with its occiput resting on the pillow (in consequence of the softening of this bone, which is the first to be attacked in this disease); in the nurse's arm, on the other hand, it rests the head on her breast, and sleeps; it has a repugnance to movement and to the upright position, and walking is painful and even impossible. 9. We must also remember prostration, which is a state of apathy; the infant is motionless, and indifferent to whatever is about it: but it follows its nurse with its eyes. 10. In stupor, there is hebetude of the physiognomy; the patient seems strange to whatever surrounds it; if it be grown a little, it answers only with some incoherent words; it does not follow the nurse with its looks, and the eyes close involuntarily, as if the patient were contending against sleep (Rigal). If to the state of agitation proper to febrile diseases

be added that of stupor, we should give a guarded prognosis, since in an acute disease this condition always indicates a profound disturbance of the cerebral functions, and leads us to fear coma. Stupor is specially observed in cerebral congestion and in adynamic fevers.

b. The *physiognomy* of infants up to the third month is without expression: the eye of the mother only can trace in her child's plump face the expression of intelligence or of imperfect perception. But the physiognomy is greatly modified by pathological conditions. 1. In diseases of the intestines; which, by consuming the fat, render the face pinched, and furrowed with wrinkles, the true image of a decrepit old man; and in certain conditions this may occur within a few days (as in infantile cholera, etc.). 2. In pulmonary diseases, the physiognomy expresses anxiety; the *alæ* of the nose are dilated, and the face becomes cyanotic. 3. In cerebral diseases, the face has an expression of stupor; it is habitually pallid, but from time to time becomes suffused with a lively redness which rapidly disappears. 4. The natural expression of the face may also be changed by a disturbance of the muscular equilibrium, as when there are convulsive movements of all or of any group of muscles (if the eye, especially of the internal rectus) which give the physiognomy a very disagreeable wrinkled appearance.

c. The examination of the *external surface of the body* should never be passed over, and must be made in every new case. The coloration of the skin in jaundice, in eruptive fevers, in cyanosis; the loss of colour in intestinal diseases, in disturbance of nutrition, and especially in diphtheritic angina, in which it indicates the approach of death; the *oedema* of the eyelids and the *anasarca* in scarlatina; the pathognomonic grimaces and convulsions of eclampsia, of chorea, and of spasmodic tic, are all data, the observation of which is of great value. The proportional development between the skull and face in hydrocephalus, microcephalia, and idiocy; the asymmetry of the cranium in epilepsy, which Müller (cited by Bouchut) saw thirty-nine times in forty-three epileptics; the condition of the anterior fontanelle, of the dentition, and of the chest in ricketty children, are also valuable indications. The temperament, the development of the body in proportion to the age, the state of nutrition, etc., will give you a physiological idea of the patient. It is scarcely necessary to mention the importance of this examination in skin-diseases. Thus *crusta lactea*, *eczema*, and *impetigo capitis*, *intertrigo* in the axilla and groins, *erythema* on the nates and heel, the cutaneous manifestations of syphilis in the vicinity of the anus, scabies, etc., have signs which are discovered by this examination. The atrophy of a limb consequent on essential or symptomatic paralysis, or on affections of the joints; the manifestations of *scrofula*; and the club-shaped fingers with enlarged nails known by the name of Hippocratic fingers, the state of the joints in rheumatism, the impress left by rickets—all these will be revealed by external inspection. This brief enumeration will be enough, I hope, to prove to you the necessity of habitually examining the external surface of the body.

Pulse.—The pulse becomes slower as the age of the child increases. It should be examined during sleep; and if this cannot be done, remember that when the infant is awake there is an increase of ten to twenty beats. To feel the pulse in an infant, special rules must be attended to; the radial artery

is found with the index finger; if the infant be asleep and move, its movement is accompanied with the hand, and if there be danger of awakening it, the examination is suspended. When the position of the infant does not allow us to examine the radial artery, we may choose the temporal, carotid, etc.

The physiological average of the pulse varies much with different authors. Thus, according to Trousseau, the average during the first weeks is 137; according to Valleix, 87; we will regard 111 as the average for the first period of infancy, and 80 to 90 for the second. The pulse of the infant, when it has fever, rises to a comparatively higher number than in the adult; thus it may exceed 200, without indicating immediate danger. In order to be able to count the pulse in these cases, it is necessary to follow Bouchut's advice, who recommends it to be counted in series of five pulsations. The febrile state, from whatever cause arising, accelerates the pulse; on the other hand, if the pulse be slow, especially after it has been accelerated, and become irregular, we may almost certainly make the diagnosis of tubercular meningitis.

Temperature.—In ordinary cases, it is best to use the hand in ascertaining the temperature; in this way certain special characters can be recognised, such as *calor mordax*, dry or moist skin, etc. If we use instruments, we can employ two kinds of thermometers; one with a cylindrical bulb for the axilla, mouth, and rectum; the other with a flattened bulb for the various points of the cutaneous surface. For the purpose of taking the temperature, Roger has divided infants into three categories: (1) newly born infants; (2) infants from one to seven days old; (3) infants above one week old.

The temperature of newly born infants is about 1 degree Cent. (1.8° Fahr.) higher than that of the mother; after three or four minutes, it falls about 1½ degree Cent. (2.7° Fahr.); twenty-four hours after birth, it has risen to the normal figure. We must take account of this fall of temperature, as explaining to us the low calorific power of infants, which renders it necessary to keep them in a warm temperature.

In infants from one to seven days old, the medium temperature in health is 37.08° Cent. (98.76° Fahr.); the minimum 36° Cent. (96.8° Fahr.); the maximum 39° Cent. (102.2° Fahr.). Inconstancy and variation of intensity in the course of the day, without disease, are, according to Litzmann, special characters of the temperature of infants at this age. There are daily and nightly oscillations, with two maxima of elevation at 9 A.M. and 5 P.M., and a minimum at 4 A.M. The differences between the day and night temperatures are but slightly marked (Litzmann).

The average temperature of children above seven days old is 37.21° Cent. (about 99° Fahr.). *Ceteris paribus*, the temperature is higher in strong and well-made children, in whom the circulation is more active. Respiration, sex, temperament, and sleep, have little or no influence in raising the thermometer.

Diseases of infants, under a thermometric point of view, may be divided into three categories:

1. Diseases in which the temperature is raised.
2. Diseases in which it is normal.
3. Diseases in which it is diminished.

The temperature is raised in ephemeral, synochal, and intermittent fevers; but especially in pneu-

monia, in scarlatina, and in typhoid fever, in which the thermometric tracing is analogous to what is seen in the typhoid of adults. The temperature remains normal in chronic diseases of the brain, lungs, and intestines. It is diminished in sclerema (in which it may fall to 22° Cent. = 71.6° Fahr.), and in cholera.

When you take the temperature by the thermometer, use the axilla in preference to the mouth or rectum. Remember that a quick pulse and hot skin always indicate an acute and febrile disease.

(To be continued.)

THE MEDICAL PARADOXES OF M. LORRAIN.

Our lively contemporary, the French *Lancet*, or *Gazette des Hôpitaux*, for July 10 and 31 last (nos. 80 and 89, 1875) devotes four pages to the views of M. Lorrain on the subjects which we have italicised below. With questionable taste, but quite in accordance with the fashion long prevalent in America, and becoming perhaps too common in England, we are treated to a description of M. Lorrain himself, which amounts, indeed, almost to a dissection, when it comes to delineate the mental qualities of its hero. A brief extract will show the kind of portraiture thus given.

‘A strange and most original creature, whose nature is essentially sympathetic, he is at one and the same time a most careful and exact observer, and a most adventurous theoriser. A mystic dreamer and a sceptic both combined, losing himself in the thinnest regions of ether, or plunging into the most earthly of positivisms. A soul which has in its recesses the freshest feelings of poesy, with the virginal purity of a young maiden, but in its outward aspect “bearded like the pard,” or rather like some ancient Zouave, and broad-shouldered as that warrior, he discusses every question as men were wont to do in the Academic groves of old Greece!’

This exordium must not be allowed to prejudice our views of M. Lorrain’s theories.

His theory of *genital rheumatism* was promulgated publicly in a recent discussion at the Société Médicale des Hôpitaux, and is briefly as follows.

In common with many other observers, he cannot help admitting that joints become inflamed in the course of blennorrhagia (the so-called gonorrheal rheumatism). These attacks of arthritis have a peculiar, and one may say, a specific character. M. Lorrain, however, does not believe that this depends upon any virus or materies morbida, but attributes the peculiar character of the rheumatism to the organs which are affected at its outset. According to him, any irritation of the genito-urinary passages, whatever its cause or nature, may produce inflammation of any of the joints of the so-called gonorrheal or blennorrhagic type, e.g. the introduction of a sound or catheter, in an old man of sixty-two, in M. Lorrain’s wards, appeared to be the cause of rheumatism. The attacks which supervene on childbirth may perhaps admit of other explanations, such as pyæmia or septicæmia. M. Lorrain states that in healthy pregnant females, a pus-like liquid can commonly be squeezed from the urethra after micturition. Thus, a pregnant woman is, according to him, always ripe for rheumatic joint-affections. Although this seems to us somewhat rash, we must admit that gouty and rheumatic attacks are exceedingly

common in some patients just after marriage, or after sexual excitement.

As regards the treatment of *lead-colic* by opium, there seems to us to be but little originality in either the views or practice of M. Lorrain, except, perhaps, in the idea that the constipation is in exact relation to the pain, and that purgatives alone fail, because they set up fresh pain. His mode of administering opium is in clysters containing eight to ten drops of laudanum, and repeated four times in the twenty-four hours.

As regards phthisis, and what M. Lorrain calls *infantilism* and *feminism*, his theory is perhaps entirely original, though Dr. Laycock has promulgated some views which closely approximate to these under other names. A carpenter in no. 3 bed, ward S. Michel, in La Pitié Hospital, aged sixty-eight, was admitted for fistula in ano, with signs of tubercular deposit at both apices. He was still muscular, and said that he had been exceedingly strong, and that when twenty-five years of age he could easily support a weight of forty pounds on his hand, with the arm extended. Yet he was then without any hair except on the head, and looked so young that people would hardly trust him to take orders or to do work. He never had much beard; the chest, arms and legs were quite smooth and hairless, his skin was like that of a young man, or rather young woman; it was soft, supple, elastic, and of almost transparent rosininess. His tall stature and large chest made these peculiarities more striking. The hair of the head was fine, silky, and of a light chestnut; another characteristic of feminism according to M. Lorrain. Both fistula and chest-symptoms were quite recent. Must we consider him as an old man who has become phthisical by accident? Not at all, according to M. Lorrain. In his eyes this man was phthisical from birth; potentially so, to follow the phraseology of the schoolmen of the middle ages, who distinguished between entities *in potentia* and those *in actu*. In other words, phthisis, like gout, is a diathesis. The germs of it may be born with us, and form an inseparable part of the constitution, although the disease may never be developed. Phthisical individuals of this kind may even reach extreme old age, exempt from active disease, and die centenarians. Or they may be attacked with phthisis in old age like this man, who must be regarded as an aged consumptive. The importance of recognising the characters of this diathesis must at once appear, if we admit the hypothesis to be demonstrated. These characters M. Lorrain sums up in these words:—*Infantilism* and *feminism*. The fineness of his hair, the length of his eyelashes, his delicate skin, and delicate outlines, the habitual slenderness of his limbs, the want of muscularity, and an excess of cellular tissue, each and all remind us of a female although we meet them in a young man. The tardy development of puberty, or an air of extreme youth in one who has already attained puberty; in men a scanty development of hair, with fineness of such hairs as exist, and a general want of virile aspect; in women, the long persistence of delicate features, a want of roundness in their outlines (‘la peu de saillie des formes, etc.’), such characters seem to prolong the period of youth far beyond the normal. There are many phthisical patients whose age, says M. Lorrain, we underestimate by six, eight, or even ten years. These are slow in becoming decrepit, and so far, their diathesis is good for them. Even after tubercles and cavities

too have formed, life is often much prolonged. One case is known to M. Lorrain, in which a phthisical patient lingered so long that he killed himself from ennui at the age of eighty-five! Patients with this diathesis are, therefore, no more all doomed to a swift death, than all the sons of gouty parents are to be covered with chalk-stones! Careful hygiene and careful treatment will often 'obviate the tendency to death.'

The last of M. Lorrain's hypotheses, to which he himself has given the name of medical paradoxes, is on the *relations of dropsy to diuresis*. Although he calls them paradoxes, he has long conducted a series of the most careful researches with the chemical balance and other instruments of precision. But he knows too well how fallacious mathematical formulæ often are when applied to medical uses. These formulæ were enunciated *à propos* of a patient in no. 20 bed, ward Notre Dame. M. Lorrain says that every individual ought to secrete a definite quantity of urine every day. This represents his 'Normal of health.' If this weight be exceeded, he at once grows thinner. If it be diminished, he becomes dropsical. When he is dropsical, if we succeed, with diuretics, in again raising the quantity of urine above the 'Normal of health,' his body-weight will diminish in exact proportion to that excess.

As an illustration, he adduced the patient referred to, a patient who had dropsy following heart-disease. The use of digitalis, in doses of one-and-a-half grains in the form of infusion, soon produced copious diuresis. Before the medicine she passed only 600 to 700 grammes [about twenty-two and a half ounces] of urine in twenty-four hours, instead of 1,500 grammes [about thirty ounces], which was estimated to be her 'Normal of health.' She then gained weight daily, though the dropsy lessened. But the moment the urine exceeded this quantity she lost weight every day. At the end of a week she had lost nearly twenty pounds. The figures which represented the daily excess of urine over the norm of 1,500 grammes were then added up, and found to amount to the same weight as she had lost, *plus* twelve grammes (or about three drachms). This seems almost a demonstration, but M. Lorrain admits that this 'Normal of health' for her, fixed at 1,500 grammes, was arbitrary, from twelve to fifteen hundred grammes being average amounts. Hence an element of doubt, which is fatal to the scientific character of the formula. M. Lorrain affirms, however (from careful weighings), that in all dropsies, no matter what the cause, the quantity of urine is diminished. He regards digitalis as a mere diuretic, a conclusion in which his reviewers cannot support him. His description of the xanthous or rheumatic diathesis has been anticipated long since, and although Dr. Laycock has given us one of the best descriptions of its external characters, we believe it was recognised long before.

SAYRE ON SPINAL CURVATURE.

In the *New York Medical Journal* for September will be found a clinical lecture by Dr. Lewis A. Sayre on spinal curvature, with an account of some novel treatment used by that eminent surgeon. He commences by detailing the difference betwixt true spinal curvature (Pott's disease) and the lateral rotary curvature which depends entirely upon irregular muscular contraction. He does not think Pott's

disease is essentially of strumous origin, but that it much more frequently depends upon some injury than upon any constitutional condition. Children, in their play, often jump from some height, and come down straight without bending their knees or hips, thereby giving a sudden and severe concussion to the bodies of the vertebræ and the intervertebral discs of cartilage; and in this manner disturbing some centre of ossification to such an extent that inflammatory action follows, and the case terminates in inflammatory softening and disintegration of the bone itself. After such disturbance or separation of one or more ossific centres of the vertebræ, several months may elapse before attention is drawn to the case, and perhaps by that time the bones have been partially destroyed, and the distortion developed. Then it is said at once that the exhausted condition which may be present is evidence of constitutional cachexia, whereas it is simply the result of long-continued suffering from a local disease dependent upon some direct injury to the parts involved. The symptoms vary according to the part affected, and if the disease be low down, the leading symptoms are referable to the bladder and rectum. The chief symptom may be a frequent desire to pass urine. Early in the progress of the disease reflex contractions are excited among the muscles, which result in a change in the appearance and action of the child. Every joint of the lower extremity is bent for the purpose of preventing any concussion from affecting the bodies of the vertebræ. The chin is made to project; the shoulders become elevated; and it is impossible for the child to stand upright, and receive any concussion whatever which may be communicated to the bodies of the bones, without suffering pain. The muscles of the back are held rigid in order to prevent any movement of the bodies of the vertebræ upon each other. The child is unable to stoop down and pick up any object upon the floor; but, if asked to do so, begins by bending the hips, and then the knees, and, finally, reaches the object by squatting down to it. These patients never bend the back, for bending presses the bodies of the vertebræ together, and gives rise to pain; consequently all the movements of the child are directed in such a manner as to prevent any motion in the spinal column. When walking about the room, the child will reach with the hands from one article of furniture to another, making careful calculation that it shall not be deprived of the support derived from one article until it is sure of another. If it cannot obtain any support from catching hold of various articles within reach, it will rest the hands upon the thighs, in order to transmit the weight of the head and shoulders through the legs to the ground, thereby giving them support without bearing on the diseased vertebræ. In the diagnosis, it is often desirable to place some object on the floor and ask the child to lift it, carefully noting the position assumed in the act. If the vertebræ be diseased, the child will squat down and pick up the object, rising again in such manner as shall keep the spine straight, allowing no movements in the spinal column which it can prevent. It never bends over like a healthy child. Then the child should be stripped, and laid, face down, with the arms over one thigh, and the legs over the other thigh, of the surgeon; the legs should then be gradually separated, so as to extend the child's body. A long drawn sigh of relief follows the traction on the vertebral column; there is a full

inspiration and complete expiration instead of the grunting respiration which obtains. On closing the thighs again, the child recommences the short catching respiration. There is usually some spasmodic action on the removal of the extension, but if not present it will at once be induced by placing one hand on the head and the other on the sacrum, and pressing the vertebræ against each other. The instant that is done spasm is produced, accompanied with a cry, and the moment extension is made the child is easy again. The other means of making out a diagnosis are then given, after which the treatment follows. Rest in bed, of course, is the first thing; with the local application of cold, and good nutritious food. All blisters, setons, etc., are worse than useless. The plans of treatment of the disease itself are those which will afford relief to the diseased parts and are very ingenious. If the cervical vertebræ be those affected, an apparatus is fixed to the shoulders, and a steel rod passes over the head from one shoulder to the other; from the top of this the head is slung, so that the weight of the head hangs upon this frame, and does not rest on the diseased cervical vertebræ. When the disease is lower down, the wheeled crutch enables the child to move about, the weight of its body being supported by the crutch. By sustaining the body of the patient in a pendent position without fatigue, the diseased parts are relieved of pressure, while the patient can have all the benefits of exercise without injury. The chief point of novelty is the application of a plaster of Paris cuirass to the patient. The child is held up by the arms (the weight of the body acting as an extending force), the shirt is stretched smoothly over the body, then, commencing at the pelvis, rollers saturated with plaster of Paris are carried over the whole trunk, just as in dressing a fracture of the thigh. Being held in this position for thirty minutes, the plaster becomes set. The cuirass is then divided from the sternum to the pubes, when, of course, the respiration becomes perfectly easy. The lower portion is then firmly secured by a roller, while the upper portion is tied at various points with elastic bandages, so as to allow free respiration. Great comfort is thus secured. The advantages of this plan are these: Its simplicity, its economy, the material for its construction being attainable anywhere; its ease of application; the readiness with which it can be adjusted to the growth of the child; and the accuracy of fit secured, more comfort being given than could be procured by any other appliance, unless made over a plaster model which would be very expensive. The objection is, that it is not very clean, but this can be obviated by using starch, flour and eggs, silicate of sodium, etc. The interference with respiration is much less than might be anticipated. Several illustrative cases showing the beneficial effects of this method are given.

J. MILNER FOTHERGILL, M.D.

MOSSO ON SOME NEW PROPERTIES OF THE WALLS OF THE BLOOD-VESSELS.

A. Mosso (*Arbeiten aus dem Phys. Anstalt zu Leipzig*, 1874), working under Ludwig's direction, has continued and extended the researches upon the artificial circulation of blood in excised organs, begun by Professor Heger, of Brussels, in the same laboratory (LONDON MEDICAL RECORD, March 17, 1875). The complicated apparatus, carefully figured

in all its details, consists of several parts. An arrangement constructed on the principle of a Mariott's flask, so as to give a constant pressure in the principal artery of the organ upon which the experimenter is working, the pressure remaining constant throughout the entire duration of the experiment. A second part of the apparatus is employed for measuring the changes which take place in the volume of the organ experimented on itself, a most essential point, and one which till now has not been taken into consideration. To this part of his apparatus Mosso gives the name of *pléthysograph*. Lastly, there is an exceedingly ingenious arrangement for measuring the velocity with which the blood flows out of the vein. We must refer to the original for the details of the apparatus.

Almost all the experiments were made with the kidneys and livers excised from large dogs, which had been previously bled from the carotids. Of course the blood employed was defibrinated.

Several series of experiments were performed. In the first series Mosso observed the phenomena of the artificial circulation of blood defibrinated in contact with air; in the second, he studied the effects of electric currents on the irritability of the vessels; in the third, the influence of interruption of the current of blood on the velocity of the blood; fourthly, the influence of different gases on the walls of the vessels; fifthly, the action of certain poisons; sixthly, the production of oedema; and lastly, the phenomena of artificial circulation in the liver.

1. After having excised the kidney and completed the necessary arrangements, the artificial circulation is begun. The velocity of the blood from the vein and the increase in size of the organ reach their maximum, and become afterwards successively smaller until their tonus is re-established. Sometimes even with the highest pressure it is impossible to cause defibrinated blood to circulate in the kidneys. This is not due to clots interrupting the circulation, but this arrest is rather to be ascribed to a tetanus of the vessels; in fact, the circulation becomes re-established after a few minutes, to be again arrested. There are other mere movements of contraction and dilatation (rapid), which modify the velocity of the current without interrupting it. These phenomena in their rhythm resemble very closely those which Schiff observed in the ear of the living rabbit. These spontaneous movements which modify the rapidity of outflow are not shown by all kidneys. When they exist, they are very pronounced a short time after death, and even are not completely absent two days after death.

2. To ascertain whether the cause of the preceding phenomena was to be ascribed to a contraction of the vessels, Mosso stimulated the kidneys with an electric current during the artificial circulation. The kidneys were enclosed in the electrodes of tin-foil. The effect of stimulation of fresh kidneys is a pronounced fall in the rapidity of outflow of the blood. It is very remarkable, however, that the induced current has no influence, whilst the constant current interrupted every second always produces a very obvious contraction.

3. After having interrupted the artificial current for a certain time, on again recommencing the current with the same pressure, it was found that the blood flowed out with a velocity much greater than before, and the muscular tonus was soon re-established. The paralysis of the vessels which was produced during these interruptions is for intervals

which are not too large, proportional to the length of the interruptions. These phenomena can be observed even on the third day after death.

The rapidity with which the vascular tonus is re-established is in inverse proportion to the length of the interruptions; a short time after death the tonus is re-established in a very few minutes, whilst two days after death it requires three-quarters of an hour of artificial circulation to cause the paralysis of the vessels slowly to disappear, and even in this latter case small oscillations are to be perceived in the rapidity of outflow.

4. In this series, Mosso studied the influence of the gases of the blood on the circulation in the kidneys. He employed four sorts of defibrinated blood: arterial blood defibrinated without contact with air; venous or asphyxiated blood defibrinated in the same manner under mercury, so as not to lose any of its gases; blood defibrinated in contact with air, which he calls apnoëic; and lastly blood treated with iron filings, which he calls reduced blood, *i.e.*, deprived of its oxygen.

In all these researches nitrogen and non-compressed air was employed. The result obtained was, that asphyxiated blood circulates with a smaller velocity than the apnoëic. The result of this series of researches is that, in artificial circulation, every time that a species of blood is made to follow another which is poorer in carbonic acid, the velocity of outflow increases, in such a way that the vessels, even though independent of the nerve-centres, can regulate the velocity of the blood which passes through them.

5. The researches made on the circulation in the kidneys of poisoned blood, show that many of the phenomena, which up to this time have been ascribed to the vaso-motor centre or the heart, are really due to a special action on the walls of the vessels. Nicotine and atropine, in small doses, produce a contraction which is of short duration; whilst in larger doses there is considerable dilatation, with increase in the velocity of outflow. Hydrate of chloral produces also, at the commencement, a slight contraction of the vessels, which is soon followed by a very considerable dilatation. Quite as constant a phenomenon is tetanus of the vessels, when blood which has been poisoned with chloral is followed by normal blood. In order to demonstrate that all these phenomena were not due to a modification of the blood-corpuscles, the experiments were repeated with poisoned serum, which gave the same results.

6. In passing from these facts to others which have a direct bearing upon pathology, we have another series of experiments on oedema of the kidneys, where the disposition to the production of oedema increases after death. On employing non-poisoned blood for the fresh organs, there is a production of oedema or exudation for a certain time; but several hours after death there are all the characters of a well-pronounced oedema.

7. Lastly, the author studied the artificial circulation in the liver. The same phenomena are reproduced in this organ, although the portal system and the hepatic vein are very poor in muscular fibres. The variations in the velocity, and its increase after each stoppage, show that in the liver, in spite of the absence of muscular fibres in the small vessels, there occur phenomena similar to those in the kidney.

The author also demonstrated these results with

poisons (nicotine, atropine, chloral, prussic acid, etc.), which yielded the same results with the liver as have already been cited for the kidney. One difference between the vessels of the liver and those of the kidney—a difference of great interest—is that stimulation with a galvanic current, interrupted every second, is followed in the liver by a very pronounced augmentation in the velocity during the irritation; whilst the induced current has no obvious action. We have here the singular case of a stimulant which dilates the vessels without first causing them to contract.

WM. STIRLING, D.Sc., M.D.

KNAPP ON ARSENIC-EATERS IN STYRIA.

At the meeting of the German Association of German Naturalists and Physicians at Gratz in September last, Dr. Knapp presented two arsenic-eaters, and made the following remarks on the subject (*Medicisch-Chirurgisches Centralblatt*, October 22).

That there are persons who eat arsenic, that is, take it in doses which in other cases are deadly, was asserted many years ago by Professor Schallgruber (*Medizinische Jahrbuch des Oesterr. Staates*, Gratz, 1822). They also formed the subject of an article by Tschudi in the *Wiener Medizinische Wochenschrift* for October, 1851, on arsenic-eaters in Styria and Lower Austria; and the communications were much commented on in English scientific literature.

In 1857, Dr. Schäfer, then professor in the Medico-Chirurgical School in Gratz, communicated to the Academy of Sciences in Vienna a case of poisoning with Scheele's green, with a number of chemical researches on the absorption and elimination of the preparations of arsenic and antimony; he also gave an account of the examination of the urine, containing arsenic, of a man who took half a drachm of arsenious acid every second day.

At the request of the royal and imperial councillor Dr. von Vest, I took the trouble to institute some new observations on arsenic-eaters, and was able to subject one to experiment.

Johann Wölfler, aged thirty, small, but strongly built, a woodman, had, he said, taken arsenic, for twelve years. On February 21 he came under my observation. He said that he had already eaten some arsenic on that day. On the 22nd, he took, in my presence, a piece of arsenious acid, weighing just four and a-half grains. On the 23rd, he ate a piece weighing five and a-half grains. While he was under observation, the man had a very good appetite, drank a large amount of alcoholic liquors, and went away on the 24th quite well. He is still alive, an Alpine shepherd, quite well and strong, and continues the use of arsenic. Unfortunately, he could not be prevailed on to come here.

I carefully collected his urine in clean vessels, and sent it to Dr. Schäfer, who found arsenic in it.

Professor Schäfer has related these facts in a communication on 'Arsenic-eaters in Styria,' published in vol. xli. of the 'Reports of the Imperial Academy of Sciences.'

This case is also given in Hasselt-Henkel's *Giftlehre* (Brunswick, 1862) with several other cases; such as one of a director of arsenic-works at Salzburg, who at the age of seventeen began with three grains, and increased the quantity to seventeen grains daily, but in what time it is not stated.

These facts, and the above-mentioned work of Dr.

Schäfer, were made known in England through a communication of Dr. Roscoe to the Philosophical Society in Manchester. Two young English physicians, Dr. Craig MacLagan of Edinburgh, and Dr. Rutter of London, became interested in the subject; and, while travelling on the continent in 1864, they came to Styria, and desired to convince themselves of the fact by personal observation. They went to medical councillor Dr. Vest, who introduced them to Dr. Macher of Stainz, and to myself, then residing in Ligest. I had often heard that there were arsenic-eaters in Ligest, but had not yet convinced myself of the fact. I was, however, able to find two arsenic-eaters, who consented to eat arsenic in the presence of the English doctors. On March 25, M. Schober ate nearly five grains of white arsenic. Flecker, whom I have the pleasure of presenting to you to-day, took, on March 26, a piece of arsenious acid weighing six grains, having on the previous day taken arsenic in the presence of several inhabitants of Ligest. The mouths of the arsenic-eaters were examined by the English doctors, to see whether they kept back the arsenic; they took away small pieces of the substance used, in order to ascertain that it really was arsenic. Some of the urine passed by the men was carefully packed, and analysed in Edinburgh, where arsenic was distinctly found. I have the honour of laying before you some copies of Craig MacLagan's *brochure*.

It is difficult to say definitely how far the practice of arsenic-eating extends. I have convinced myself that there are many arsenic-eaters in Upper and even in Middle Styria; a number of grooms, woodmen, and hunters are known to me as arsenic-eaters, and women even follow the practice. Many begin to use arsenic at the age of seventeen or eighteen, and continue the practice to a very advanced age. Most arsenic-eaters conceal the fact, so that it is impossible to obtain certain statistics. The principal reason alleged for eating arsenic is that it protects from disease, as in the case of the man Flecker; it is also regarded as a means of producing a ruddy appearance, as a remedy against difficulty of breathing, and as an aid to the digestion of food that is digestible with difficulty. A poacher in Upper Styria told me that he gained courage through the use of arsenic. It is effectual also as an abortive; and in 1865, while in Ligest, I had the opportunity of making the *post mortem* examination of a peasant girl, Maria Payer, who had taken arsenic for this purpose; the foetus was expelled, but she herself died of arsenical poisoning ten days afterwards.

The appearance of the arsenic-eaters in the cases known to me is strong and healthy; and the sexual impulse is strongly developed in all of them. I believe that it is only strong persons who can accustom themselves to the habit. They sometimes reach a great age. I have seen in Zeiring a still very strong charcoal-burner, seventy years of age, who was said to have used arsenic for forty years. In the *Giftlehre* above quoted, is related the case of a vigorous chamois-hunter, eighty-one years old, who had long been accustomed to use arsenic. I have never observed arsenical cachexia in habitual arsenic-eaters. A case, however, occurred in Ligest in 1865 in the person of a leather-dresser, who, when intoxicated, took too much, and had symptoms of acute poisoning. According to his account, he took a piece as large as a bean; he perfectly recovered, and later again used arsenic, but with more care.

According to my observation, both white arsenic

(arsenic acid or *Hüttenrauch*), and yellow arsenic or orpiment, are used in the dry state, either alone or strewed on bread. The dose is, of course, at first very small, and is gradually increased. The greatest quantity that I have seen taken is fourteen grains. The man Schober, above mentioned, took seven and a-half grains in my presence, on April 17, 1865. The intervals at which the arsenic is taken vary much; fourteen days, eight days, twice or thrice a week.

All doubt as to the correctness of the statement that there are arsenic-eaters, ought to be for ever removed by the existing proofs.

J. F., aged fifty-five, a tailor, has taken arsenic, generally orpiment, since 1849. He was led to the practice by being obliged to go into a house where fourteen persons had died of typhus, and which no one would venture to enter; he wished to protect himself against the disease by the use of arsenic. He began by taking a grain daily for three days. Although at first he did not feel quite well, he had no vomiting, nor irritation of the stomach. He now takes about six grains of orpiment once a week; more when he has to undergo greater exertion, or when his digestion is impaired. He says that the arsenic expels gastric flatus. According to his statement, his father also took considerable quantities of arsenic. He also knows many people in the neighbourhood of Ligest, who take arsenic, many in larger doses than he uses; and he says that they all enjoy very good health.

P. H., aged twenty-five, a servant residing in Schwanberg, while serving as a herdsman, noticed that the other herdsmen gave arsenic to the cattle, and took it themselves. He also tried it, and became accustomed to it. He takes every eighth day a piece on bread or bacon, and has always been fresh and healthy; when he endeavoured to leave off arsenic-eating, he felt uncomfortable.

In both these cases orpiment was generally used.

After the reading of the paper, the man J. F. took four and a half grains of yellow sulphide of arsenic, and P. H. six grains of arsenious acid, in the presence of the meeting.

After Professor Leube, of Erlangen, had, in the name of the meeting, thanked Dr. Knapp for his communication, Dr. Barthel asked what influence the continued use of arsenic had on the sexual impulse, and whether it was the fact that arsenic-eaters became impotent. Dr. Knapp replied that he had observed the contrary in the cases that had come under his notice. Professor Gerhardt inquired whether paralysis or diminution of electric irritability had been observed in arsenic-eaters. Dr. Knapp had not noticed anything of the kind. Professor Kaposi made some remarks on the use of large doses of arsenic for a long time in chronic skin-diseases. In one case the quantity of arsenic taken in a year amounted to 225 grammes (about 340 grains). The result was very favourable; there were no symptoms of poisoning at any time.

A. HENRY, M.D.

ANATOMY AND PHYSIOLOGY.

MATTHIEU and URBAIN ON THE CAUSES AND MECHANISM OF THE COAGULATION OF THE BLOOD. MM. E. Matthieu and Urbain, according to the *Bulletin Général de Thérapeutique* of September 5, have made an important series of experiments on

the mechanism of the coagulation of the blood and albuminoid substances, which allow them to assimilate the phenomena of coagulation to a chemical precipitation. Their pamphlet on the subject (*Causes and Mechanism of the Coagulation of the Blood*, Masson, 1875) states that the transformation of the soluble substance into an insoluble compound is produced by the intervention of an acid usually masked by the alkalinity of the liquor. This acid, indispensable to the formation of the coagulum, does not pre-exist either in the milk, the muscles, nor even in the normal liquids of the organism; the blood excepted. On the contrary, the acid which coagulates the fibrine and the so-called albuminous liquids is pre-existent in the blood, in white of egg, and in the secreted or pathological fluids of the animal economy.

Carbonic acid is the agent in the coagulation of albumen and serum. Its effects are produced at a high temperature only, because the ammoniacal salts which are normally found in albuminous solutions form an obstacle to its action. Albumen deprived of volatile salts is precipitated in the cold way by carbonic acid, and transformed into a powerful embodiment of the principal properties of globuline. Carbonic acid is likewise the cause of the coagulation of the fibrine. The removal of this gas, obtained by exosmosis or any other proceeding, renders the blood incoagulable. Amongst living creatures, carbonic acid is not in a condition to coagulate fibrine dissolved in plasma, because it is combined with red corpuscles which are endowed with a great affinity for this gas. Hæmatin removes it from the tissues, and eliminates it by the medium of the lungs and the glandular or cutaneous secretions.

The obliteration of the passages by which carbonic acid is excreted cause it to pass into the plasma and bring on accidents of intravascular coagulation, induced by direct retention (pulmonary asphyxia) or by change in the corpuscles (suppression of cutaneous transpiration). The displacement of the acid gas of the blood by the oxygen of the air determines the spontaneous coagulation of the fibrine when an animal membrane does not permit its rapid diffusion into the atmosphere. The fibrine coagulates in the interior of the vessels after ligature, an extreme slackening of the circulation or inflammation, because carbonic acid, a product of direct or neighbouring oxydation, accumulates in the blood beyond the limits of saturation of blood-corpuscles. Venous or capillary thromboses develop themselves spontaneously in cachectic affections, because there supervenes an alteration of the red corpuscles, characterised by the diminution of their power of absorbing oxygen, or the acid gas of the blood.

Cadaveric rigidity is the consequence of the accumulation in the muscles of the same acid gas, developed under the influence of slow oxidations which are produced by exposure to the air. During life, venous hæmatosis, by removing the carbonic acid from the tissues, prevents the muscular coagulation in the same way as pulmonary or arterial hæmatosis, by eliminating the carbonic acid from the blood-corpuscles, puts an obstacle to the coagulation of the fibrine of the blood. The coagulation of milk is preceded by oxydation, like the muscular coagulation; and this oxydation accompanies the transformation of lactose into lactic acid. Caseine is coagulated by this acid at the ordinary temperature, or by alkaline lactates at a temperature of from 112° to 146° Fahr.

STRELZOW AND OTHERS ON THE FORMATION OF BONE.—The current series of the *Archiv für Mikroskopische Anatomie* contains three papers on this subject. They are analysed as follows in *Nature* for September 25. Two of these, those by Strelzow and by Stieda, speak of the ossification of cartilage and of bone-growth, and arrive at quite contradictory results. The older view on bone-growth starts from the supposition that the bones once formed undergo no further plastic change, that their single parts cannot displace each other, that, therefore, an interstitial growth cannot be imagined. If the growing bone, as usual, does not merely show a uniform increase in size, but little by little changes its shape too (the bent bones for instance, the bends of which change during growth), this naturally leads to the supposition that besides the deposit of fresh material, a solution or absorption of those older materials took place, which did not fit the new shape. In opposition to this view, which Stieda also defends, Strelzow tries to prove that the bone grows interstitially, that, therefore, it can change its shape in an outward direction without reabsorption of any of its parts, that it is useless, therefore, to suppose the latter to take place, and that there is no reason for such a supposition. Now, with regard to the change from cartilage to bone, it has certainly been proved, for most cases, that the cartilage is first destroyed before in its place a bone grows from fresh materials. But while Stieda thinks this the case everywhere, Strelzow observes that the lower jaw and the shoulder-blade form exceptions to the general rule, the cartilage there passing immediately from its softer state to bone. Hertwig's observations, which he makes with regard to his investigations of the teeth of Reptilia, have a much more extensive range. In Hemibatrachia the teeth form earlier than any other bones of the head, and starting from this basis those bones in the oral cavity are destroyed, which only cover the exterior of the original cartilage-skeleton, and are therefore called covering bones. In frogs these bones certainly form without the help of the teeth, which only appear at a later stage; but as frogs (Batrachia) and salamanders (Hemibatrachia) are of the same order, and particularly as the former are the more recent family, Hertwig thinks that in their ancestors the formation of teeth took place in the same way as in the salamanders now, but that in course of time they lost the primitive bone-forming teeth and retained only the bones resulting from them. The formation of teeth now observed in frogs is therefore a secondary phenomenon. Just as the bones of the oral cavity have their origin in the teeth, Hertwig supposes the covering bones on the exterior of the head to result from scales, and states that this is still very evident with certain fishes. What is a rule for lower vertebrata may also be applied to the higher orders, so that all covering bones may be derived from scales or teeth, which in sharks and rays are still equivalent and homologous formations. Therefore sharks and rays must be looked upon as the oldest forms of Vertebrata provided with bones; they are succeeded first by salamanders, then by frogs, and finally by the remaining reptiles, birds, and Mammalia.

GRAY ON CONVERSION OF NERVE-FORCE INTO HEAT.—Dr. H. A. Chatham Gray argues (*Indian Medical Journal*, September, 1875) that the direct cause of animal heat is the conversion of nerve-force into thermal energy, while chemical changes only

affect the temperature of the body indirectly by originating nerve-force. The reasons which seem to him to warrant such an idea he divides into physical, physiological, and pathological. The physical proofs consist of a very rudimentary attempt to enunciate the doctrine of the correlation of forces. The physiological facts may be thus briefly summed up. 1. 'During action, the temperature of muscle rises, not indeed from more vigorous chemical changes in the muscle,' 'for there is a considerable increase in temperature in the muscle of a frog' (*sic*). 2. 'The temperature is higher when a muscle is prevented from shortening than when it is allowed to do so,' 'the nerve-force which should have produced muscular motion being converted into heat.' 3. 'The temperature of the body falls rapidly when the brain is severed from the spinal cord.' 4. 'Division of the cerebrospinal nerves causes a fall of temperature in the parts supplied by them.' 5. 'Division of the cervical sympathetic of one side causes a very great rise of temperature on the same side of the face,' 'the superabundant nerve-force being converted into heat.' The pathological facts are:—1. 'All acute inflammations of the brain and spinal cord are accompanied with a high temperature;' 2. in tetanus the temperature is high, and this because a large amount of nervous force is liberated; 3. hysterical patients may be able to generate heat at a spot to which their attention is directed. The author thinks 'that anyone with time and opportunity at his disposal can soon settle the matter,' and he 'is very sanguine that the theory will stand the ordeal of demonstration.'

[The author appears unacquainted with the recent literature on the subject. Most of the arguments he uses, that have any connection with the question, seem rather suited to refute than support his views. As may be seen, his *data* do not partake of the singular originality displayed in his mode of reasoning.—*Rep.*]

MASIUS AND VANLAIR ON VASO-MOTOR CENTRES AND THEIR MODE OF ACTION. — M.M. Masius and Vanlair, in a paper read at the International Congress in Brussels (*Gazette Hebdomadaire*, no. 41, 1875), described researches which they had instituted with the object of checking Goltz's conclusions respecting the existence of peripheral tonic centres and vaso-dilator nerves. Their investigations led them for the most part to share his views.

Their experiments, which were performed on dogs, gave the following results, the variations of temperature of the part being taken as a measure of the amount of dilatation of the vessels. Electric excitation of the sciatic nerve or the spinal cord always caused immediate dilatation of the vessels of the parts supplied, the retraction of the vessels following the cessation of the irritation. Irritation of either end of the sciatic nerve or of the cord after section, was followed by the same result, which was very striking when the central extremity of the cut sciatic was irritated, the cord having been previously cut in the lumbar region.

More section of the sciatic nerve or of the cord was always immediately followed by dilatation of the vessels, which fact the authors consider to confirm Goltz's view that section acts as an exciting agent; however, they did not find, as he did, that the anterior limbs were similarly affected. The section of the nerves or cord was invariably followed by a progressively increasing fall in temperature of the

parts supplied; this commenced towards the end of the first week, and that remained as the ultimate result of the operation. Its gradual occurrence is explained by the slow degeneration of the vaso-dilator fibres of the cut sciatic, allowing a free field of action to the peripheral tonic centres.

The authors conclude that in the normal condition 'the vaso-dilator apparatus of the spinal centre is constantly solicited by peripheral excitations and at once reacts upon the sciatics. When part of these excitations is annihilated by severing the nerves from the cord, the latter necessarily loses part of its vaso-dilator power.'

The vaso-motor apparatus then consists of two principal centres and intermediate nerve-fibres. The centres are (1) the cerebro-spinal axis, and (2) the aggregate of the nervous cells distributed at the periphery along the vascular system. The fibres are vaso-constrictor (centripetal) and vaso-dilator (centrifugal).

GERALD F. YEO, M.D.

WARLONT ON THE FUNCTION OF THE CILIARY MUSCLE.—In conjunction with Dr. Nuel, of Luxembourg, Dr. Warlont has contributed an elaborate account of the ciliary muscle to the *Dictionnaire Encyclopédique des Sciences Médicales*; and the entire article is to be found in the *Annales d'Oculistique* (May and June, 1875). The anatomical relations of the muscle, as a whole, and the arrangement of its two principal sets of fibres, are elaborately illustrated in the first portion of the article. Before stating his views on the function to be assigned to these different sets of muscular fibres, Dr. Warlont quotes the opinion of Dr. Giraud-Teulon upon this very point, which is to the effect that no hypothesis has as yet served to explain the exact rôle played by the ciliary muscle in producing the convexity of the crystalline lens; and he himself was unable to aid in clearing the obscurity. Since Giraud-Teulon wrote as above, ten years have elapsed, and still the problem is unsolved; and while Warlont agrees with Giraud-Teulon in considering the theory propounded by Helmholtz, and now generally received, as the most probable, yet he is of the opinion that it only partly explains the facts as they occur; and he thinks it highly probable that the relaxation of the suspensory ligament, and the consequent increase in the convexity of the crystalline lens, are due to the action of the circular fibres alone; and that it is the function of the radiating fibres to antagonise the circular fibres, by again putting the suspensory ligament on the stretch, and by restoring the somewhat flattened condition of the lens. Although he admits this to be a hypothesis, Dr. Warlont thinks that the functions of the ciliary muscle are analogous to, if not identical with, those of the iris; and that, although the power of accommodation is compatible with absence of the lens, as a rule the two structures perform their functions in the same manner. The probability of this being the case is due to the fact that the innervation of the two structures is through the same nerves; so that in a state of health the accommodation takes place *pari passu* with the movements of the iris. As exceptions to this, there are some diseases of the spinal cord in which there is persistent action of the iris, although the power of accommodation is completely abolished.

Very remarkable differences have been shown to exist between the ciliary muscles of eyes which were myopic and those which were hypermetropic

during life, and they are relied upon by Dr. Warlomont as supporting his theory; and while he adopts the general opinion that there is no such power as that of negative accommodation—adaptation of the eye for distant objects—he yet holds it impossible that the accommodation can under these circumstances be absolutely relaxed, inasmuch as the muscular tonicity still remains, and must be taken into consideration.

‘It has been objected,’ says Dr. Warlomont, ‘that, as the radiating fibres of the muscle, when in action, form an arc with the convexity inwards, a separation of the muscle from the sclerotic must take place after each contraction, and that, unless the space so formed be filled by some fluid or other, the pressure of the atmosphere would prevent any action of the muscle whatever.’ And, in answer to this objection, he asks whether it is clearly proved that there is any such separation between the muscle and the sclerotic? or whether it is quite clear that the sclerotic does not follow and adapt itself to all the movements of the muscle, which must, in any case, be of very limited extent?

In concluding this part of his subject, Dr. Warlomont admits that he also, like Dr. Giraud-Teulon before him, can throw but little light upon this confessedly obscure problem in physiological optics.

BOWATER J. VERNON.

DE SINÉTY ON THE DEVELOPMENT OF GRAAFIAN FOLLICLES IN THE OVARIES OF NEWLY BORN INFANTS.—The observations of M. de Sinéty on the ovaries of infants at birth (*Société de Biologie*, June 5, 1875) tend to confirm the views of Waldeyer and of Slavjanski as opposed to those of older authors. The author found in all the specimens examined Graafian follicles so developed as to be quite evident to the naked eye, and especially so in the neighbourhood of the hilum. At birth the vascular portion of the ovary, which at a later period becomes the medullary layer, was observed to be situated almost entirely outside the organ, forming a pedicle of support like a mushroom-stalk. This pedicle contains large vessels which nearly reach the ovary proper, and this last has distributed through it ovules in various stages of development. The author observed further that, during the few days succeeding birth, many of the follicles had increased so much in size as to form true cysts, and that in all cases the cysts contained ovules, a fact which left no doubt as to their origin. Beneath the cysts were several cicatrices, more or less folded upon each other, a circumstance which showed that hypertrophied cysts may become retracted.

The author is inclined to associate this activity of the ovary at birth with what occurs in the mammary gland at the same period, but thinks his observations scarcely numerous enough to justify the assumption of its constancy. (See LONDON MEDICAL RECORD, August 16, page 480.)

Moreover, just as the congestion which accompanies the secretion of milk in infants may overstep the physiological limits, and give rise to inflammation or mammary abscess, so the process of development of Graafian follicles may pass on to the production of ovarian cysts.

The author suggests that it would be interesting to learn whether any corresponding activity of the testes occurs in the male infant, which, equally with the female, has the milk-secreting function of the mamma at this early period of life. The well-known

inflammation of the mammary gland in both sexes at puberty may be placed in comparison with the above facts.

The cicatrices which result from the occlusion (*atrésie*) of the follicles cause the connective tissue and vessels to pass more deeply into the ovary, and to force the ovule-containing layer towards the surface. The Graafian follicles of this layer are found deeply situated, and therefore near to the vascular supply, a fact which may account for their active growth at this early age.

BUSHELL ANNINGSON, Cambridge.

SCHULTZE ON PRICKLE-CELLS IN THE WALL OF THE STOMACH OF VARIOUS ANIMALS.—In 1864 M. Schultze discovered the so-called ‘prickle-cells’ in the mucous membrane of the mouth and conjunctiva, and in the rete Malpighi. A few years later these peculiar cells were found by F. E. Schultze, in the epithelial covering of the lip, of the tongue of the sturgeon in the skin of *Triton niger*, *Rana esculenta*, etc. Joh. Brümmer (*Centralblatt*, no. 28, 1875) has found these cells in the first or muscle-stomach and in the œsophagus of the dolphin, in the stomach of the ox, in the left part of the stomach of the horse, in the stomach of the common rat, house-mouse, water-rat, and field-mouse. The author is of opinion that these cells occur wherever the epithelium of the stomach is hard and like horn, and their formation is proportional to the extent of the corneous process. They seem by their firm attachment to form a firm tough epithelium which serves in one place for protection—e.g. in the skin; in another for breaking up the food—e.g. in the wall of the stomach.

PICARD ON GLYCOGEN IN MARINE ANIMALS.—P. Picard (*Gazette Médicale*, 1874, no. 49), in estimating the amount of glycogen in the liver, converted this substance into sugar, the amount of which was estimated by titration with Fehling’s solution. In different species of osseous fishes, the quantity of glycogen in the liver varied from 1.1 to 6.4 per cent.; in cartilaginous fishes from 0.3 to 1.6. The difference is explained by the liver of the latter being more voluminous. In relation to body-weight, on the contrary, the quantity of glycogen nearly coincides. In the liver of lobsters there was 0.4 to 0.5 per cent.; of crabs, 0.3 per cent. of glycogen. The presence of glycogen was also proved in echinoderms, polyps, and sponges. Sugar was regularly found; still the change of glycogen into sugar proceeds in general slowly in fishes. No sugar was found in crustacea, mollusca, etc.

VULPIAN ON THE VASO-DILATOR ACTION OF THE GLOSSO-PHARYNGEAL NERVE ON THE VESSELS OF THE MUCOUS MEMBRANE AT THE BASE OF THE TONGUE.—A. Vulpian (*Comptes Rendus*, lxxx. 330) shows that the glossopharyngeal is the vaso-dilator nerve for the posterior parts of the lingual mucous membrane, just as the chorda tympani is for the anterior part of the tongue. Electrical stimulation of the glossopharyngeal produces intense redness of the part of the tongue supplied by that nerve. Further, the author has convinced himself that, after destruction of all anastomoses, this action of the glossopharyngeal nerve remains the same.

BERNHARDT ON THE QUANTITY OF WATER IN THE HUMAN CENTRAL NERVOUS SYSTEM.—M. Bernhardt (*Virchow’s Archiv*, lxiv. 297) finds from his analyses that the mean value of the quantity of

water in the spinal cord of patients who died from various diseases is, for the cervical part, 73·05 per cent. water; of the lumbar regions, 76·04; results which correspond pretty closely with those of Bischoff, but are higher than those of von Bibra. The cortical portion of the brain gave a mean value of 85·86 per cent., while the white matter only gave 70·08 per cent.; that of the sympathetic, 64·30 per cent.

WM. STIRLING, D.Sc., M.D.

PATHOLOGY.

RIEGEL ON PARALYSIS OF THE VAGUS NERVE. Dr. F. Riegel (*Berliner Klinische Wochenschrift*, August 2, 1875) says that the pathology of the vagus is still deficient. The following case is recorded as a contribution thereto.

The patient was a locksmith, fifty-three years of age. In the last spring he was in hospital for several weeks suffering from bronchitis, after which, for some time, he returned to his work, but was again disabled by difficulty of breathing on exertion, with slight cough and palpitation. Hæmoptysis occurred on one occasion. On his admission under Dr. Riegel's care, in March last, he was greatly emaciated, his aspect withered and shrunken. He had occasional convulsive twitchings of single muscles of the forearm and hands. He had suffered from these twitchings at the age of twenty-three; these, after a time, had subsided, but had gradually returned within the last two years. The lungs, with the exception of slight bronchitis, were in a normal condition. The number and character of respirations were also normal. The heart's impulse was feeble, and indistinct; its sounds were clear. The radial pulse, small and sometimes scarcely perceptible, was 164 in number. The extent of the heart's dullness on percussion was more extensive than usual. There was nothing abnormal observable in the abdominal viscera. His temperature was normal. Both lungs became dull behind under percussion, the sputa became of a dark red colour, the heart's action continued much the same, and the temperature slightly fell; in the course of a few days the patient died.

With reference to diagnosis in this case, the congestion of the lungs contributed but little. More or less bronchitis had existed throughout. The one prominent and more distinct symptom was the persistently accelerated pulse, with which, moreover, the diminished temperature contrasted. The absence of derangement of any other organs left only to be inferred that there existed a paralytic affection of the vagus nerve. It was noted, as a clinical observation, that beyond a trifling hoarseness there was no affection of the voice.

When the results of the experimental division of the vagus in animals are borne in mind, there could be little doubt that here was a paralytic affection of that nerve. The cause of this paralysis it was not easy to determine. With the exception of the slight amount of bronchitis and the secondary congestion of the lungs, there were no symptoms which could be referred thereto. The nearest solution of this question lay in the possible existence of an intrathoracic tumour of some kind, but there was no other indication of the existence of anything of the sort. The death of the patient afforded an opportunity of investigating the lesions of these parts. The lungs presented patches of congestion.

The heart, beyond slight hypertrophy, exhibited nothing particularly abnormal. The bronchial glands were slightly enlarged and firm, and were of a deep black colour. The vagus nerves were carefully examined throughout their course. The left nerve, directly below the giving off of the recurrent nerve, was imbedded in and incorporated with the tissues of a lymphatic gland. The nerve was, at this point, atrophied and soft, and, examined microscopically, was found to have become degenerated into fat-cells. The right vagus was healthy in structure. The brain and other parts were also in a normal condition. Thus, the results of anatomical examination confirmed the diagnosis formed during life.

It is to be observed as remarkable in reference to this case, that the dyspnœa, which is produced by the division of both vagi in animals, was not present; while at the same time the acceleration of the heart's action that has been observed under such conditions, was here noticeable. From experiments which the author has made on animals, he has observed that these symptoms are not always present when only one nerve is divided. Tumours, such as aneurisms and tumour of the anterior mediastinum, generally affect the recurrent branch, and thus exhibit symptoms affecting the larynx, but seldom or never affect the respiration. If they do occur, they may be referred to the condition of the larynx. The respiration in these cases may be affected when the cardiac action is interfered with in consequence of the pressure on the vagus. When this is the case, the pulsations of the heart are considerably accelerated. A case of this kind, related by Hayem, only differs from that related above in the fact that, although only one side was affected, the acceleration of the heart's action was much greater. In conclusion, the author remarks that the case above recorded shows the facility with which the diagnosis of paralysis of the vagus may be made, and the ease with which the locality of the lesion may be designated.

COSSY AND DÉJÉRINE ON THE DEGENERATION OF NERVES SEPARATED FROM THEIR TROPHIC CENTRE.—MM. A. Cossy and J. Déjérine (*Archives de Physiologie*, August and September, 1875), give the results of certain original observations on the divided nerves of young guinea-pigs. These observations were made on nerves at every stage of degeneration, from twenty-four hours to nineteen days.

The following are the conclusions which are arrived at from these observations.

1. The loss of power of exciting movement, which is observed in the peripheric end of a divided nerve at the end of the third day, is caused by an alteration in the molecular constitution of the axis cylinder, an alteration which renders it fragile, perhaps even causing a solution of continuities. This alteration, whether the solution takes place or not, renders the nerve incapable of transmitting impressions of any kind.
2. This alteration is primary; the lesions of the nuclei and of the protoplasm are secondary.
3. There is an analogy between the loss of the excito-motor property of the nerve, and the diminution of contractility in the muscles thereby supplied. The muscular fibres, however, do not present any appreciable difference in appearance.
4. The central nervous system may be considered as exercising an exciting influence on the nutrition of the nerve-tubes, which lose their physiological properties, on separation therefrom.

5. All the myeline tubes are subject to this influence, but the fibres of Remak are not so distinctly subject thereto. W. HENRY KESTEVEN.

BAILEY ON ARREST OF GROWTH.—In the *Boston Medical and Surgical Journal* for August 26, is an article on arrest of growth, by Dr. F. K. Bailey. The patient was a negro girl, aged eighteen, with perhaps a slight admixture of Anglo-Saxon blood. She was a little lame, and there was inequality in the length of the lower extremities, and also of the upper. At the age of twelve an eruption made its appearance upon the left elbow, which extended above and below for some distance. To some extent the same appeared upon the shoulder and the scapular region. This had continued to appear at times, and from what was discoverable upon the arm it appeared to be eczematous.

From the time above stated, both extremities ceased to grow. Menstruation appeared at fourteen, and development appears to have been rapid and normal upon the right side. On measurement, the left upper extremity was twelve inches from the acromion to the olecranon, and fifteen from that point to the end of the middle finger. On the right side a comparative measurement gave thirteen and seventeen inches respectively, a difference of three inches. The circumference of the left wrist was five inches, and of the right six inches. The left hand was small and tapering, like that of a delicate little girl. The right was plump and rather 'stubby.'

There was a difference of from two to three inches between the lower extremities. The left foot was at least two sizes smaller than the right. On measurement about the chest, there was but little if any difference in size, although the girl stated that she had her dresses made smaller upon the left side, especially across the shoulder, where a perceptible difference could be seen. Her health was not good, as she had suffered from dysmenorrhœa and scanty menstruation from the commencement of the flow; she had also been much annoyed by palpitation, and, till within two years, wholly unable to lie upon the left side. She had sick head-ache very often, and indigestion. There were a heavy forcible beat of the heart, and physical signs of hypertrophy of the left ventricle; no valvular derangement, but the first sound was unusually loud. She said that walking up a hill, climbing stairs, or running had always caused her to be short-breathed, with some pain in the side.

Owing to the unequal size of the limbs there had been a corresponding impairment of strength and of ability to labour; still she managed to use the right arm in many kinds of work, but had never been able to find employment as a house-servant.

Her mother had cicatrices upon the face from scrofulous sores, and, although the mother of twelve or more children, was not very strong. The father died lately of consumption.

J. MILNER FOTHERGILL, M.D.

BODDAERT ON THE COMBINATION OF ARTERIAL HYPEREMIA AND VENOUS CONGESTION, WITH AN APPLICATION TO THE PATHOGENY OF EXOPHTHALMIC GOITRE.—Dr. Richard Boddaert (*Gazette Hebdomadaire*, no. 41) described at the meeting of the Brussels Congress some experiments on the above subject, which lead him to support the view formerly expressed by Trousseau, namely, that the exophthalmos in the disease of Graves depended upon a kind

of pathological erection, *i.e.*, arterial hyperæmia with venous congestion. He ligatured the jugular veins in a rabbit, and found that but slight exophthalmos resulted. After section of the sympathetics in the neck, he found the eye rather retracted. By means of a combination of both experiments, however, *i.e.*, tying the four jugulars at the root of the neck, and section of both sympathetics at the same level, he found very notable exophthalmos, which only subsided very gradually after several hours, and which could be reproduced at will by impeding the flow of blood to the heart by allowing the animal's head to hang down. A considerable rise in pressure occurred in the ligatured veins, but no hæmorrhage resulted, and very rarely œdema. The temperature of the head was not sensibly altered by the double operation, as it fell after ligature of the veins, and rose after section of the nerves. He believes that in all cases of the disease in question both factors of the experiment are found to exert a certain amount of influence. 1. The paralysis of the sympathetic, as is shown by the exaggerated pulsations in the carotids and their branches and by the remedial efficacy of electrification of the nerves. 2. Impediment to the return of blood to the heart, as evidenced by the venous congestion, the tendency to hæmorrhage and œdema, and by the fact that the goitre and protrusion of the eyes are both augmented by the spasmodic cough which frequently accompanies the disease (Dusch). The venous congestion the author believes to be the consequence of some anatomical or physiological change in the centre of the circulation, the exophthalmos and goitre being diminished when the heart is quieted.

GERALD F. YEO, M.D.

DUMONT-PALLIER ON CANCER OF THE STOMACH, INTESTINES, GREAT OMENTUM, AND LUNG.—In *La France Médicale* of July 14, 1875, no. 56, M. Dumontpallier reports a case of extensive cancerous growths in a married woman, aged fifty-eight, who made pasteboard. There was no history of previous illness till four months before her death. The enlargement of the abdomen had only been noticed three or four weeks. There were great nausea, constipation, fæcal vomiting, and retention of urine. She was admitted moribund to the Hôpital Saint-Antoine, and died seven days after. Nearly the whole abdomen was filled with an irregular mass, in which it was difficult to distinguish the left lobe of the liver and the omentum from each other. At the necropsy, some ascitic fluid escaped on opening the abdomen. The abdominal wall on its inner surface was covered with a large number of knobs (*maimelons*) of some size. The great omentum was one large thick hard mass of cancer. No intestines were in the pelvis, which was full of serous fluid, with fibrinous strings, resembling coarse muslin. The walls of the stomach and intestines were much thickened, and the cavity of the intestines almost obliterated. The mesenteric glands were all infiltrated and enlarged. The brain, liver, spleen, kidneys, heart, and uterus, had all escaped the cancerous growth. Both surfaces of the diaphragm, especially the left pleural, had little cancerous patches. Both lungs at their bases had nodules of cancer. M. Cadiat found large cells, of epithelial type, granular, and containing numerous large nuclei.

W. BATHURST WOODMAN.

MEDICINE.

BERTRAND AND BUCQUOY ON THE DIAGNOSIS AND TREATMENT OF HYDATID CYSTS OF THE LIVER. The *Gazette des Hôpitaux* of August 10, 1875, contains a report by Dr. Bussard of a case of hydatids at the Hôpital Militaire du Gros Caillou under the care of M. Bertrand, and *La France Médicale* for August 18 and August 21 (nos. 66 and 67 for 1875) contains a clinical lecture by M. Bucquoy on two cases in the Hôpital Cochin, reported by M. Boulet. Dr. Bertrand's case was a soldier, aged twenty-nine, who was admitted an in-patient on March 14, 1873. Originally robust, he had suffered from dysentery in Algeria in 1865; in 1871, whilst a prisoner in Germany, he had acute rheumatism, and two months later jaundice, lasting three weeks. Again in August, 1871, being in Algeria, he had intermittent fever, which forced him to return to France in November. Then for the first time he began to feel pain in the hepatic region, and noticed that his belly increased in size and became hard. From November, 1871, to March, 1873, he suffered occasional pains in the same region, and the abdomen increased in size. On admission, there were no acute symptoms. A bilobed tumour of the size of a fist on the right, of a nut on the left side of the linea alba, was attached to the liver, which extended about two fingers' breadth below the costal cartilages. It followed the movements of the liver. The tumour was most evident in the epigastric region when the man stood upright. Its outline was smooth. There was no pain produced by handling it. Percussion gave to the finger a perfect example of 'hydatid fluctuation.' Dr. Dieulafoy confirmed the diagnosis of hydatid cyst, and aspirated the tumour with number two trocar. Seven hundred and fifty grammes (about 24 ounces) of perfectly limpid fluid, not coagulable by either heat or nitric acid, in which microscopic examination showed numerous hooklets, were withdrawn. Towards the end of the operation the patient was attacked with acute dyspnoea, which lasted about a quarter of an hour, after which he was quite free from pain. Collodion, cotton-wool, and a firm bandage were applied. Twenty-five hours afterwards he had slight rigors, and his temperature rose to 102.1°. In five hours more, he had urticaria on the abdomen and thighs, which disappeared next day. There was no return of the tumour. In Dr. Dieulafoy's *Traité de l'Aspiration*, two similar cases are recorded. M. Jaccoud, in his clinical at the Lariboisière Hospital, mentions a large number of cases of hydatid cysts cured by a single puncture. On July 10, 1874, M. Lanceraux related two similar cases to the Medical Society of the Hospitals. A male patient, aged fifty-five, had about three pints of hydatid fluid removed from a cyst. A little vomiting and slight peritonitis followed: but he was quite well in nineteen days. Another man had four litres (about seven pints) of fluid removed from a hydatid cyst. He was quite cured in less than a month. See also M. Desnos (*Bulletin de Thérapeutique*, July 15 and 30). The presence of hooklets in the fluid is noticeable, since it is sometimes said that the cysts cured by a single puncture are only simple cysts, not truly hydatid. In reality, simple serous cysts of the liver are very rare. M. Bucquoy's case was a young man, aged twenty-five years, a shoemaker, who was admitted an in-patient on December 12, 1874. For two months he had felt weight and oppression in the

right hypochondrium; but it appeared, on closer questioning, that his abdomen had been somewhat swelled for some five years or more. However, he had been passed for military service, and had been two years in Algeria without being invalidated for a day. Liver-dulness in the mammary line reached from the nipple to the navel. There was a large rounded tumour in this mass. Hydatid fremitus was not audible on auscultation. The absence of acute pain, the absence of jaundice or ascites, all pointed to hydatids. On December 19, Dieulafoy's aspirator was used, and 2,400 grammes (nearly four pints) of perfectly limpid non-albuminous fluid, which contained hooklets of echinococcus, were drawn off. The cyst soon refilled, and on December 25 was again tapped, when about a pint of clear bile-stained fluid was removed. After this he went out and went to work. On February 8, 1875, he was re-admitted. A week before, after dancing at a ball, he had been seized with violent pain; from this time to March 3 he was tapped three times; one pint, three pints, and about fifty ounces of fluid, which was each time more turbid, being withdrawn. M. Prunier, pharmacien of the Hôpital du Midi, found 3 per cent. of coagulable albumen, and about 1 per cent. of non-coagulable albumen (paralbumin), with salts, bile-colouring, and a few leucocytes in this fluid. On March 15, after about seventy-five ounces of fluid had been withdrawn, an injection containing one-third of rectified spirit was introduced and left. Only slight momentary burning was produced at the time. Four days afterwards there were rigors, local tenderness and pain, general fever, and vomiting. On March 24 and 31 purulent fluid was evacuated, amounting to fifty-five and thirty-eight ounces. It was then decided to open the tumour by means of Vienna paste. This was done; and on April 8 a fresh puncture through the eschar gave exit to about twenty-two ounces of very nasty-looking purulent fluid. Very few seconds elapsed before the patient was seized with acute pain, first in the right hypochondrium, afterwards radiating over the whole right side of his abdomen. Subacute peritonitis, with a temperature of only 98.4°, ended in death on April 15. The necropsy showed peritoneal injection, and false but easily separable membranes, gluing together the intestines, without any ascites. The whole of the right lobe of the liver was converted into a great fluctuating pouch, weighing, with its contents, nearly ten pounds. The eschar had not penetrated the cyst, though firm adhesions had been formed round it. The dimensions of the cyst were 25½ inches circumference in one direction by 23½ in another. All liver-tissue had disappeared; the wall of the cyst was about one-sixth of an inch thick. It contained about five pints of whitish purulent fluid. Through the opening a large opaline bladder of some stoutness protruded, which was, in fact, a large hydatid. Some striated membrane escaped from it. There were some doubtful secondary cysts of very small size, and two small hydatids, the rupture of which gave exit to a little clear typical hydatid fluid. No more hooklets could be discovered. The gall-bladder, though imbedded in the cyst, was not diseased. Not a drop of the fluid could have escaped into the peritoneum at the last puncture. The fatal issue was, doubtless, due to the suppuration of so large a cyst, with extension of the inflammation to the peritoneal covering. There may also have been purulent infection. M. Bucquoy had another case in the same hospital, in a woman aged

thirty-six years, who had suffered from gastralgia after food as far back as 1872. At the end of 1873 she noticed a swelling in the epigastric and right hypochondriac regions. When admitted she had feelings of weight and pain in the epigastrium, bilious vomiting, and occasionally very sharp pains. A smooth, rounded, and elastic tumour was discovered just below the right costal cartilages, near the false ribs. Dieulafoy's aspirator gave exit to about twenty-two ounces of limpid, non-albuminous fluid, in which no hooklets were discoverable. She recovered without a bad symptom, and at the end of two months was quite free from any tumour and from any symptoms of its return. The hydatid was in all probability a sterile one, as no hooklets were discoverable in the fluid. [These cases show that hydatid cysts may sometimes be very painful, even apart from suppuration. The reporter has seen two cases in the London Hospital, one under Dr. Andrew Clark's care, in which the pain was so severe as to make the diagnosis of cancer not improbable. An exploratory puncture rendered the diagnosis of hydatid a certainty. The safety of puncture, with proper precautions, and the danger of injecting very large cysts with irritant fluids, is also shown in the cases given above.—*Rep.*]

BOUCHARDAT ON THE HYGIENIC TREATMENT OF GLYCOSURIA. — In the *Montpellier Médicale*, tom. lxxxix. 3^e Livr. pp. 97-107, Professor Bouchardat gives an extract from his forthcoming volume on Glycosuria, which will be published by Germer Baillière. He complains that many of his researches have been attributed to others by the medical press, partly, perhaps, because never collected into one volume. The key-note or, rather, dominant characteristic of his researches has been the use of scientific methods to determine the rôle of different alimentary substances, and the best methods of utilising them in the diet of diabetics, and to apply these researches in practice, by indicating what ought to be ordered or forbidden to such patients. He classifies the chief results thus obtained as follows :

1. Experiments showing the origin of sugar in the urine diabetics ;
2. Choice and varieties of food suitable to such ;
3. The principle of substitution of fatty foods for those farinaceous materials which cannot be utilised ;
4. Principles guiding the use of farinaceous food ;
5. On the choice of clothing, and on attention to the skin in glycosuria ;
6. On the effects of exercise on the progress of this disease ;
7. On the nature of glycosuria.

1. As regards the first point, the origin of the sugar, Bouchardat, by weighing accurately each kind of food supplied to diabetics and then estimating the sugar in their urine for a given time, has discovered the relation between the quantity of farinaceous food ingested and the sugar excreted. These researches include cane-sugar, lactine, milk, inuline, and inosite. The results were given in his first publication. After this, M. Claude Bernard made the remarkable discovery that many other kinds of food, notably animal food and gelatine, could produce glucose when digested. Whilst fully recognising the value of M. Bernard's researches, he contends that essentially they support his own—explaining anomalies which puzzled us before.

2. As regards food which produces little or no sugar, he claims to have done great service in showing that the apparent cures thus wrought in hospital or private practice, were seldom really such ;

and that although the sugar disappeared, the general health often suffered by the privation ; that the 'diabetic diet' soon disgusted, and ceased to nourish. He insists most strongly on the necessity of a sufficiently varied diet for the preservation of health. It is, therefore, not true that he ever pretended to cure diabetics with gluten bread.

3. In conjunction with M. Sandras, Bouchardat has made many researches on the substitution of fats and alcohol for farinaceous food. He has shown that farinaceous food is of more staying character than alcohol, and less so than fatty food. Therefore, the effects of alcohol being too transitory, it cannot replace farinaceous food with advantage by itself. On the other hand, chyliferous animals digest oils so slowly that they cannot take enough to replace farinacæ. Hence, it seems only reasonable to combine the use of alcohol and fatty foods, in the case of diabetics. His researches have shown the proper proportions. The use of good wine in moderation is a powerful means of supplying the mental and moral energy of which these patients stand in so much need. This is the experience of many years' observation of such cases. But excessive use of alcohol is so highly dangerous in such cases that it should never be rashly prescribed.

4. As to the use of farinaceous foods ; we cannot hope ever to cure diabetics who have tubercles in their lungs, or albumen in their urine, or other renal symptoms. We can, however, often relieve them. In ordinary cases, even treating the symptom of glycosuria by withholding farinaceous food leads to a more or less permanent cure. Diabetics dissolve and digest these foods in the stomach rather than in the intestines, as in health. This sort of fermentation may sometimes be stopped. The gastric juice of diabetics secretes diastase. To restore the gastric juice to its healthy character may be difficult, but should be our aim. M. Bouchardat (in the text and in a note) lays great stress on the frequent examination of the urine. Every patient has, so to speak, a personal equation in this matter, which should be recognised and regulated. Starchy food must be allowed, but only with extreme care. For if the sugar in the urine and blood be in great excess, pneumonia may destroy the patient.

5. As regards the skin and the choice of dress, M. Bouchardat insists strongly on the advantages of flannel. The temperature of diabetics being 1° or 2° Centigrade (1·8° to 3·4° Fahrenheit) below the average, indicates the propriety of this : exercise, baths, frictions, douches, shampooing, may all be useful in their place.

6. As regards the utility of exercise, of course with due care to prevent over-fatigue, our author is eloquent, and adduces, as we think, good reasons for his opinions.

7. The essential characteristic of glycosuria, at least in severe cases, is, according to M. Bouchardat, the production of a glycogenic ferment, a ferment of the second order, diastase, which produces the excess of glucose found even in the vomit of a fasting diabetic. An excess of sugar in the blood has been over and over again demonstrated by him. As his observations on the disease and its treatment have been made by instruments of precision, he does not agree with M. Bernard that our treatment of diabetes is necessarily empirical [Claude Bernard, *Revue Scientifique*, April 5, 1873]. [The reporter, whilst fully recognising the justice of many of these views, cannot help thinking that their author is far more

sanguine than most English physicians dare be, as to the success of treatment in diabetes mellitus.—*Rep.*]

LASÈGUE ON RHEUMATIC PLEURISY.—The *Gazette des Hôpitaux*, of July 17 last, no. 83, contains a clinical lecture delivered by Professor Lasègue, on a case of pleurisy at La Pitié. The patient was a tall, stout-built, almost plethoric Alsatian, aged thirty years—a policeman, exposed to cold and wet in his vocation. On March 6 he had a rigor, followed by feverishness and copious perspirations. Almost simultaneously he felt acute pains all over the right side of the chest, intensified by movement and respiration. Decubitus on the left side and cough were almost impossible. Even deglutition was painful. After some days, the pains persisting, though over a more limited area, he entered the hospital, still suffering considerable pyrexia; and pleurisy was diagnosed, over a very limited space, near the base of the right lung, behind. The stabbing pain was most intense just below the nipple, and was very severe. Wet cupping over the affected spot gave great relief; the next day, the ninth of the attack, there was but little pain, the effusion was less, the feverishness gone. The diagnosis was *rheumatic pleurisy*. M. Lasègue thinks that pleurisy of a rheumatic nature may be distinguished by its site, its severity, its extent, and its duration. The inflammation is limited to the parietal pleura, the subcostal and intercostal *fibrous tissues*. The pain is localised, and is extremely severe, and increased by movement, like the pains of a rheumatic joint. It may, indeed, alternate with, or be metastatic with, a joint-affection. The attack is seldom prolonged very greatly, and the prognosis is favourable. The fever runs high in these attacks. On the other hand, in pleurisies which commence with the lungs or bronchial tubes, which one may therefore call visceral pleurisies, broncho- or pneumo-pleuritis, the fever is less, the stabbing pain is less; there is more difficulty in localising them, and though the pain does not last so long, the disease lasts longer, and is of less favourable prognosis. It is not, however, denied that a rheumatic pleurisy may involve the lungs, and perhaps bronchial tubes also, after it has existed for some time. Hence it is important to distinguish the two forms early. In the later stages of both, thoracentesis may be necessary. M. Méhu, chief *pharmacien* at the Hospital Necker, has shown that *when a pleuritic effusion is found to be rich in chlorides, and other mineral salts, it seldom recurs after tapping; whilst those which leave little saline residue when evaporated to dryness, are not only reproduced, but commonly end fatally.*

It is rare, however, for a pleurisy of rheumatic origin to need paracentesis. M. Lasègue says that once, when in doubt as to the nature of a paraplegia with acute spinal pains, and pains round the loins, the supervention of a pleurisy of this sort enabled him to diagnose rheumatic meningitis of the cord, and to give a hopeful prognosis which was fully justified by the event.

LASÈGUE ON A NEW FORM OF ANGINA.—A midwife, aged sixty years, was admitted an in-patient of La Pitié, under the care of MM. Gombaud and Rigal. The case is reported in the *Gazette des Hôpitaux*, July 17. She stated that her health had always been good, except that twenty years ago, having burnt her finger, she delivered a young woman whom she be-

lieved to be free from venereal disease, but who was not so. Some days afterwards, her finger developed a sore with indurated edges, and she learnt from the young woman's doctor that he was attending her for syphilis. The glands in the axilla swelled, and some of the lymphatics were reddened. She took a little medicine, which she believed to be mercury. She never had any rash, nor any other venereal symptoms. Indeed, her health was quite good, until six months ago, when she fell several times on the frozen pavements. From this time she was never well, her legs became feeble, and she was feverish every night. She lost flesh and appetite also. About two months ago, in an omnibus, whilst perspiring, she was exposed to a draught of cold air. After this she began to sneeze and cough, and supposed she had caught a common cold. When, after some months, the cough ceased, the nose was not cured, and nasal breathing was still difficult. At the same time the throat became worse—and she had pain in swallowing. This was eight days before her admission to hospital. On inspecting the throat, the tonsils and back of the pharynx were covered thickly with small ulcers, varying in size from a lentil to a large pea, with greyish floor, and between them the mucous membrane was red and glistening. The mucous membrane between the ulcers was indurated, and the edges of the sores were raised, and the ulcers themselves looked as if punched out. The rapid healing of the finger twenty years before, and the reddened lymphatics, with the absence of specific symptoms, led M. Lasègue to believe that the sore on the finger was a soft chancre only, and that the present affection was not venereal—and that the angina in question was a new form of pustular sore-throat which had ended in ulceration. [The reporter knows of several cases in which there was an interval of twenty years between the primary sore and the occurrence of any well-marked specific affection. The nocturnal fever and the nasal affection in the case mentioned, also point to syphilis. Further, Dr. Revillout, who reports this case, mentions another of a policeman, under the care of Dr. Jobert de Lamballe, who, twenty years after a primary sore not followed by rash, had acute periostitis of the clavicle, which was perfectly cured by iodide of potassium in fifteen days; though so severe as to have been mistaken for necrosis by a surgeon, who could not believe that syphilis could lie dormant twenty years.—*Rep.*]

W. BATHURST WOODMAN.

CHARCOT AND GOMBAULT ON A CASE OF PROTOPATHIC MUSCULAR ATROPHY.—A case related by MM. Charcot and Gombault in the *Archives de Physiologie* (August and September, 1875), forms a nucleus, or rather is taken as the text, for a number of valuable remarks on the symptomatic differences between two forms of chronic muscular atrophy. Muscular atrophy, when of spinal origin, is caused by destruction of the nerve-cells in the anterior cornua of the spinal cord. In one of the forms of this disease which is brought under our notice, this pathological change is a deuteropathic or secondary phenomenon. That is to say, the original lesion takes place in some other portion of the cord, and, by certain steps now partially traced, finally affects the grey matter of the anterior cornua. In the other form of the complaint, the primitive lesion occurs in the grey matter itself. It may from that point spread to other portions of the cord, but this state of things is rare. In the

latter case the amyotrophic condition is the sole symptom ; in the former it is superadded to the pre-existent symptoms, but is of independent evolution, and clearly marked among the other symptoms. Such diseases as locomotor ataxy, *sclérose en plaques*, and unilateral sclerosis dependent on a cerebral lesion, afford instances in which the amyotrophic condition is deuteropathic.

Protopathic muscular atrophy presents certain negative symptoms which are nevertheless important. These are, that the cutaneous sensibility is never much altered, the nutrition of the skin, and the functions of the bladder and rectum are never affected. These symptoms are, however, not conclusive, and it is sometimes very difficult to distinguish this form of muscular atrophy from that which occurs when a primary and symmetrical sclerosis of the lateral columns of the cord gives rise to a lesion of the anterior horns. Among the symptoms of a non-negative character the first to be noticed is the individual atrophy, that the affected muscles undergo, 'neighbouring muscles preserving their normal contour, and standing out in marked relief, distinct from the affected muscles. This symptom, to use an expression of Duchenne de Boulogne, is the 'facies' of the disease. There is no downright paralysis, but the muscles lose their liberty of movement. There is, of course, consequent on this atrophy a certain amount of deviation from the normal position in the limb, owing to the action of the antagonistic muscles. Stiffening of the joints is, however, not produced in this disease, except when there has been prolonged immobility. The muscular fibre also preserves its faradic contractility.

In a case of lateral sclerosis the muscular atrophy is modified by its co-existence with the proper symptoms of that disease ; instead of individual muscles being attacked, a whole group is affected or an entire limb ; in consequence also of the spasmodic rigidity which becomes more and more marked as the disease goes on, the joints become fixed in an abnormal position.

In both forms of disease the upper limbs are generally attacked first, but the condition of the lower limbs is very different in the two forms. In the protopathic forms they maintain their integrity till quite at the close of the patients' life ; in the deuteropathic form they are weakened and atrophied, in from two to nine months after the commencement of the disease.

The course of the two diseases is also different ; that of true muscular atrophy being sometimes prolonged to eight, ten, and even twenty years, while in the atrophy dependent on lateral sclerosis the course of the disease is rapid, and death soon occurs from the lesion spreading to the medulla oblongata. The lesion of the medulla, as shown by labio-glossolaryngeal paralysis, is very rare in the protopathic form of the disease, but is almost a necessary condition of the evolution of the deuteropathic form.

The case related in the paper is that of a woman aged thirty-seven years, who was admitted to the Salpêtrière in March, 1869. She died in 1875. The symptoms of protopathic progressive spinal muscular atrophy were in her case all well marked. The necropsy and a very careful microscopical examination of the cord proved the diagnosis made during life to be correct. There were certain symptoms which came on in the later stages of the disease, which showed that the disease had communicated itself to other parts of the cord, though

only to a trivial degree. This was also established by the *post mortem* examination. The paper is illustrated by two plates, which show very clearly the morbid appearances presented in the cord, the nerves, and the muscular fibres, of the patient who was under observation.

W. HENRY KESTEVEN.

PIORRY ON VERTIGO.—In the *Bulletin de l'Académie de Médecine* there is printed a paper by M. Piorry on vertigo, with some remarks on megrim, and other vibratory nervous affections spreading from a centre of irritation (*névropathies prosasiques*), such as epilepsy, hysteria, etc.

The *Dictionary of the Academy*, M. Piorry observes, has defined vertigo as 'an indisposition in which the person affected fancies that he is turning round, or else that everything is turning round him.' It would have been better, in the first place, if it had said that it consisted not in fancying this turning, but in seeing it ; and, in the second place, if it had realised that vertigo includes not only turning, but displacement of objects up and down or to either side, and also a hesitation in the movements of the lower limbs. The chief point, it may be gathered, which M. Piorry is anxious to bring out is, that the sensation of the movement of external objects which is felt in vertigo is not a hallucination or subjective impression, but the result of an actual displacement of the images of the objects on the retina, due to an involuntary contraction of the muscles of the eyeball. The oscillation of the eyeball, which is the cause of this, has been completely passed over by the writers on the subject ; and the first actual observation of it in a case of vertigo, is to be credited to a doctor's wife, who found it in her husband coincident with the vertigo, both in beginning and end. That this is the origin of the feeling of vertigo is confirmed to M. Piorry, by finding that a skilful pressure on the eye in health will produce a similar displacement of near objects ; and he believes the oscillation to occur in many, if not all, cases of vertigo.

M. Piorry goes on to a detailed comparison of vertigo with the irisaigia which often accompanies megrim. He confirms the picture which Dr. Living has given of the fortification pattern or teichopsia (*On Megrim, etc.*, pp. 84, 514), which appears in ophthalmic megrim as being an exact representation of what he has himself been subject to for more than forty years. It begins as a vague phosphorescence, which hinders any clearness of sight, and then shapes itself into a bright and sparkling toothed circle, which vibrates and grows until it fills the field of vision. Then it becomes pale, and sometimes smaller, and disappears after a few minutes, or at most a quarter of an hour. So long as it lasts there is no pain ; but as soon as it is gone acute pain or throbbings follow above the eye, and spread to the temporal or frontal nerves, from them by the anastomoses of the spheno-palatine ganglion to the eighth pair of nerves, whence arise nausea and sickness. In vertigo, on the other hand, the first symptom is the displacement of near objects in the field of vision ; after this no pain follows beyond a feeling of throbbing and heaviness in the same nerves. After irisaigia a pain sometimes runs through the suboccipital nerve, and there results a tingling and quivering in the fingers which passes up the fore-arm. After vertigo there is the same feeling of discomfort in the suboccipital region ; but it spreads thence not to the arms, but legs, producing an unsteadiness of gait. After both affections, nausea and sickness often

follow; both tend to recur at regular intervals, the irisaigia especially in cases where it is associated with disease of the spleen; in both the mind is unaffected, and there is no permanent paralysis, and M. Piorry has never known a case where cerebral hæmorrhage or softening supervened. The conclusion is that both must be considered members of the same family of diseases, of which the characteristic is a vibratory movement spreading from a single centre through various nerves. These morbid vibrations M. Piorry calls 'névropallies prosasiques,' and is anxious to distinguish them from nevropallisme, the normal vibration which constitutes the vital action of the nerve. In the case of irisaigia the point of origin is in the iris and its sensory nerves; in the case of vertigo it is in the muscles of the eye.

It seems very possible that many movements which are now called sympathetic, may be similarly produced; and of nervous diseases, epilepsy, hysteria, and hydrophobia may be put in this class. In epilepsy the irritation may start from the eye, pass along the optic nerve to the brain, and affect first the mind and then the muscles. In hysteria it may start from the ovary, pass through the pneumogastric nerve to the nerves of the cesophagus and larynx, and reach finally that part of the brain which controls the genital organs. Lastly, in hydrophobia it seems to originate in the bite of the animal, and pass thence by the nerves to the salivary glands, pharynx, and larynx.

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ISHAM ON SMELL IN THE DIAGNOSIS OF DISEASE.—In the *Cincinnati Clinic* for October 9, is an article by Dr. A. B. Isham, on the above subject. It formed a communication read before the Cincinnati Academy of Medicine, October 4. Dr. Isham says:

An enumeration of the affections which were supposed to emit a characteristic odour, from the time of the father of medicine, would include very nearly the whole catalogue of diseases. The advance of medicine as a science has eliminated smell as a special entity pertaining to individual disease until now its application is comparatively limited.

Heat is admitted by the best authority to be the quality principally concerned in the evolution of odour. To this source we may attribute the unpleasant odour arising from the arm-pits and feet, of very strong and annoying character in some persons, despite frequent ablutions. In these situations the nice adaptation of the free surfaces one to another maintains a temperature corresponding to that of the internal body. Such a heat operating externally upon the skin would engender activity of the cutaneous secretory apparatus. Here the matters volatilised would be dispersed so rapidly by the media of the atmosphere as not to be appreciable to the ordinary sense of olfaction. In the axilla, however, where the sudoriferous glands and sebaceous follicles are more numerous and aggregated, and free evaporation hindered, there would be a concentration of odour, rapid and powerful in exceptional individual cases. The oil poured out by the sebaceous ducts is probably assimilated by the hairs, but where it is furnished in excess it would add to the offensiveness of the smell.

The rank and butyric odour of the feet we would account for by the decomposition of the fatty principles of the secretions. It is familiar to all how

soon butter confined in a close receptacle and exposed to summer temperature will become rancid. The two products do not differ materially in composition and it seems a reasonable deduction that, under the same circumstances, they would develop the same odour. This would apply also to the glandulæ odoriferæ of the genitals. In the latter case the continual washing of the urine would prevent an augmentation of smell.

This seeming digression has been made because, in health, no odours other than the above mentioned are appreciable; but put diseased processes in force, temperature is elevated, secretions and excretions are changed, new products are formed and a variety of odours are evolved. We will attempt to set forth how much they may profit us in the diagnosis of disease.

Diabetes mellitus is a disease insidious in its approach. A more general appreciation of the saccharine aroma, which has been described as similar to new mown hay or crushed apples, might often induce its recognition long before other symptoms would be sufficiently pronounced to elicit inquiry. The frequent association of phthisis with diabetes, either as the primary affection, or secondary, is a matter of general note. A like connection with pneumonia has been observed by Beale, Flint and others. Andral has found asthma in five instances preceding diabetes. It is not unlikely that saccharine urine would be much more often discovered in the above diseases, as also in bronchitis and emphysema, if thoroughly sought for. Good quotes Dr. Bardsley as affirming that he could not recollect a case of diabetes uncomplicated with pulmonary disease. A significant fact is also stated by Andral in a recent contribution on diabetes, that in nearly all the necropsies conducted by him there was an appearance of commencing tubercular granulations in the pulmonary parenchyma. But in these states of lung trouble only a portion of the structure is rendered incompetent to allow of the natural interchange between the blood and the inspiratory current, and the uncomplicated balance of the respiratory tract is sufficient for the metamorphosis of the sugar, particularly also, as in diseases of the pulmonary organs there is anorexia, and in the decrease likewise of the saccharine formative material. On the other hand, the cerebral irritation and the chloroform administration impresses the whole muscular tissue of the lung and no portion is left solely free for exercise in the purposes of aerification. Besides the pathological condition governing diabetes gives rise generally to bulimia, with increase of matter introduced into the stomach and corresponding increase, of course, of saccharine principles to be separated from the blood.

It is notable that in phthisis the sputum not uncommonly has a sweetish smell. It is in such cases not improbable that the urine, where interrogated, has returned evidence of sugar, produced, may we not say, by the extension of the phthisical lesion over an extent of lung texture sufficient to impair its uses in the depuration of the blood?

In carbuncles and boils, too, temporary glycosuria, with the sweet odour, is often observed. May not the accumulation of sugar in the blood and its excretion by cutaneous channels enter into the etiology of furunculi, rather than the reverse?

Smell is an aid, often the only and certain element in the detection of the alcohol habit, alcoholic coma, as distinguishable from narcotic poisoning, apoplexy

or epilepsy; of poisoning by phosphorus, prussic acid, the alkalies, chloroform, camphor, carbolic acid, laudanum, chloral and the oils of savin, tansy and turpentine.

In chronic discharges from the nasal and aural cavities an extremely offensive odour is indicative of implication of the bony structures. A fetid exhalation of the breath occurring in the course of pneumonia would be presumptive of gangrene of the lungs; supervening on phthisis—gangrene of the lung or destructive ulceration in the bronchi, trachea or larynx would be a rational inference.

Foreign substances, as of brass, tin or copper, lodged in the air-passages might be determined by the metallic flavour of the breath. A case has been brought to my notice where a small brass charm was drawn through the larynx of a child and carried down into the bronchial tubes, giving rise to ulceration, which, while the origin was not suspected until the body was expelled, diffused through the breath a strong and marked metallic odour.

Diphtheria not unfrequently fixes itself without any general manifestations pointing to its presence. In such an event the fetor of the breath incident to this affection may strike the olfactory organ, and it is an invaluable sign which may often give us early warning of the disease.

Among the insane, the idiotic, the imbecile, the excessively modest, the aged and the infantile, disease may commit secret ravages from inability or fear on the part of the sufferers to make suitable expression. Smell might here be an agent of invaluable purport in the disclosure.

In cases of obstruction of the bowels, preventing the descent of feces, the expulsion of feculent matter by emesis would be first revealed by the smell; and it affords the most important clue to the nature and seat of the trouble.

Worms in the intestinal canal usually produce a most nauseous breath. Either alone or in connection with other symptoms it is an indication of value.

In affections of the female generative organs smell is a useful adjunct to diagnosis. A very foul condition of the discharges from the vagina in a female with any claims to cleanliness would point to ulcerations of the os uteri or vaginal walls, to cervicitis or endometritis with loss of tissue and to cancerous growths seated in these parts. In some females menstruation may be determined by the odour.

In puerperal fever, where the discharge is not altogether suppressed the abominable stench of the decomposing lochia will not infrequently first arrest the attention and exhibit the nature of the affection almost beyond possibility of error.

Peculiar to lying-in women is a pungent, unpleasant smell. Where there might be a design on the part of the patient and attendants to cover up a miscarriage, this smell would be of service in revealing it.

Odour would determine a disease of the urinary organs of the male, as gonorrhœa, cystitis, nephritis or cancer. These affections are common to the female as well; but in either sex where smell would lead directly to diagnosis, the subjects would be either lunatics, idiots, bashful to a sense of imbecility, or suffering from other maladies serving as a mask.

In wounds of the abdomen with or without penetration of the intestine or stomach the presence or

absence of the fecal odour of the former and the acid smell of the latter, may mark the extent and gravity of the injury.

Incontinence of urine can be discovered by the smell, and in persons of secretive or remarkably diffident nature it might be a sign of great significance.

It is universally conceded that the perspiration and breath of acute rheumatism exhale a markedly acid smell. It has no diagnostic consequence, and is probably due to a surcharging of the blood with lactic acid and its escape by the cutaneous and pulmonary excretory channels.

Small-pox has been described as dispensing a singular odour during the sweating and also pustular stages. The first, in my estimation, possesses exactly the same features pertaining to the general class of fevers, and the smell does not differ therefore, except perhaps in the quality of strength, from freer sudorification. To the fever group, particularly the exanthemata, does suppression of the internal secretions belong, the sweat glands and lungs performing vicarious functions of elimination, and the sebaceous follicles also taking part in the abnormal activity. When these emunctories are thus crowded with excrementitious principles; increased smell is a natural accompaniment of the concentration. To my mind, at least, it is evident that the odour bears a relation to the grade of febrile action and the state of the internal glandular apparatus, and not to any special disease. In regard to the pustular stage of variola, the scent, so far as I am able to discriminate, does not depart from that generated during suppuration following burns of the cutaneous envelope, nor of suppurative skin-diseases.

The excreta of dysentery and cholera have attributed to them exclusive odorous impressions. The evacuations of typhoid fever with ulceration and exfoliation of the internal coat of the intestine, the disintegration and discharge of cancerous growths implanted in the bowel, have an odour so similar to dysentery that the most delicate olfactory sense must go astray in an attempt at isolation. So likewise, by the same token, advanced phthisis with colliquative diarrhœa and emesis, and chronic diarrhœa with profuse perspirations, I opine, would be indistinguishable from cholera.

That disordered state of the stomach commonly known as dyspepsia gives rise to two distinct odours according to variety—the sour or acid, and the sulphuretted hydrogen smell. The affection occurs as a complication of many others, but when this odour exists without lesions of other parts, as may by careful examination be determined, it is of value as diagnostic of the malady.

The ulcerations commonly called bed-sores, occurring in the course of any affection necessitating long confinement to the bed in one position of recumbency, may first attract notice by the smell diffused.

In a few cases of habitual masturbation I have fancied a rare perfume, a very much mitigated liquor amii sort of odour. Individuals who may contaminate the atmosphere with such a flavour are, in police parlance, 'entitled to suspicion.'

Porrigo favosa is said to disengage an odour. It is described by some as having a smell similar to the urine of mice, and by others to be more like that of a cat. It has no diagnostic use, as the affection is well declared before the smell is developed. Of

prognostic value, if true, is the assertion of some observers that the urinary secretion of the patient acquires the smell of cat's urine when the disease is about to terminate.

Hyperhidrosis of the feet and axillæ may be predicted upon the powerful logic of smell with absolute certainty.

In conclusion, the insane are supposed by some authors to generate a characteristic smell. At this time, this idea is confined principally to lawyers. This professional class can, with unerring certainty, discover an odour of insanity to emanate from all individuals confined under charge of capital offence.

GRANCHER ON TONIC MEDICATION.—An analysis of M. Grancher's thesis on this subject, published in the *Archives Générales de Médecine* for June, 1875, remarks that the limits of tonic medication are difficult to define; and that anyone going through many treatises on therapeutics is struck with the difference of opinion existing between their writers respecting drugs which should be so classed. Medicines of the most opposite kinds may at any given moment exercise the most decided tonic action. For instance, what can be more restorative than the action of mercury on syphilitic patients, of the alkalies on the gouty, and of the potash-salts on scorbutics? The limit is specially hard to find between tonics and stimulants. As a rule, those medicines which address themselves to the vital powers *in posse*, so as to increase them, are considered as tonics; and those which act on those powers *in actu* to excite them, as stimulants; but a great number of drugs are both tonic and stimulant at the same time. The tonics really worthy of the name are those which slowly and permanently increase the strength of the patient. With these may be ranked the neurosthenics or dynamophorous medicines, such as coffee, which by acting on the nervous system rapidly induce the slackening of the progress of denutrition and combustion. A large part of the thesis is consecrated to the special study of the action of, and the indications for, sulphate of quinine, alcohol, coffee, arsenic, iron, the bitters in general, etc. Tonics act by moderating organic combustion, but to induce this result it is a question whether they act primarily on the blood, the nervous system, or on the cardio-vascular system. Their principal action seems to influence the nervous system, but it is very probable that a certain number of them, alcohol for instance, also have a rapid and powerful action on the blood-corpuscles, but it would be unwise to wish to decide this question in an absolute manner. The various tonics are not given indifferently to all patients whose strength requires sustentation or reparation; febricitant adynamics call for the use of alcohol and quinine; convalescents require analeptic reparatory elements, and quinine and feeding may be combined with advantage in their cases. Almost a specific for chlorosis may be found in the chalybeate preparations, whilst nothing can stay the progress of cancerous cachectic conditions. Iron augments the activity of the nutritive phenomena; after its administration the temperature rises, the appetite is larger, therefore the administration of this drug becomes dangerous when digestive difficulties forbid the hyperactivity of nutrition from being compensated by a proportionate increase of food, and it is thus that the noxious action of iron in the course of febrile affections and consumptive diseases is explained.

TILLOT ON THE TREATMENT OF CHRONIC RHINITIS BY PULVERISATION.—Dr. Émile Tillot, after having studied the different forms of chronic rhinitis, shows in *Annales des Maladies de l'Oreille et du Larynx*, 1875, that the treatment of this disease should fulfil three indications: 1. To combat the diathesis under the influence of which the disease of the nasal fossæ has shown itself; 2. To completely cleanse the mucous membrane from its secreted products, muco-pus and crusts; 3. To combat the lesions of the mucous membrane. The first result is attained by a constitutional treatment in sulphurous or sodaic chloridised waters, if the rhinitis depend on scrofula; antisyphilitic, if it be due to syphilis; arsenical or alkaline, according as there is need to fight against an herpetic or an arthritic diathesis. The second indication is drawn from the large nasal douches justly extolled by Dr. Duplay; and if these injections cannot be borne—for instance, when there is a great tendency to epistaxis—they must be replaced by injections with cold water or some appropriate mineral water. The third indication is fulfilled by means of absorbent and slightly cathartic powders, such as calomel, tannin, etc., or by the administration of these substances suspended in liquids, and used in spray-producers. M. Tillot has modified the end of the spray-producers so as to allow them to produce this pulverisation in the nasal fossæ, and the liquid he uses in preference is the Eau de Saint-Christau.

RECENT PAPERS.

- On a Variety of Vegetative Endocarditis with Typhoid Symptoms. By Dr. Maurice Raynaud. (*L'Union Médicale*, October 12.)
- Case of Hysteria. By Dr. McCall Anderson. (*Glasgow Medical Journal*, October, 1875.)
- Record of an Epidemic of Chicken-Pox. By Dr. Samson Gemmell. (*Ibid.*)
- The Results of some Questions of the Kidneys in Bright's Disease in Relation to Albuminuria and Hæmaturia. (*Ibid.*)
- On the Comparative Temperature of the Two Axillary Regions in Double Pneumonia. (*Gazette des Hôpitaux*, October 16.)
- One Case of Meningitis and Fourteen Cases of Chorea. By M. Bouchut. (*Le Mouvement Médical*, October 16.)
- Progressive Pernicious Anæmia or Anæmotosis. By Dr. Pepper. (*American Journal of Medical Sciences*, October, 1875.)
- Angina Pectoris. By Dr. H. Osgood. (*Ibid.*)
- On Cold as a Cause of Acute Inflammation. By Dr. King. (*Ibid.*)
- The Pulse: Its Diagnostic, Prognostic, etc. By Dr. Broad-bent. (*Lancet*, October 23.)
- A little-known Episode of Measles: Catarrh of the Middle Ear. By Dr. Brochin. (*Gazette des Hôpitaux*, October 23.)
- Note on a Case of Typhoid Fever treated by large Doses of Alcohol. By Dr. A. Malherbe. (*Journal de Médecine de l'Ouest*, September, 1875.)
- Case of Cerebral Rheumatism treated by Chloral and Bromide of Potassium. By Dr. C. Mac Munn. (*Dublin Journal of Mental Science*, October 1, 1875.)
- On Diathetic Palpitations. By Dr. G. Sée. (*France Médicale*, October 30.)
- A fresh Exception to the Law of Antagonism between Heart-Diseases and Pulmonary Tuberculosis. By M. Péter. (*Gazette des Hôpitaux*, October 30.)
- Palpitations connected with Basedow's Disease. (*La France Médicale*, October 27.)

A Brussels correspondent of the *Pall Mall Gazette* informs that journal that a school of medicine for ladies, due to private initiative, will be opened in that city on December 1.

SURGERY.

REULING ON A CASE OF MYOSIS AFTER A GUN-SHOT WOUND.—In the *Virginia Medical Monthly* for September, is a report by Dr. George Reuling of a case of myosis, caused by paralysis of the left side of the cervical portion of the sympathetic, in consequence of a gun-shot wound.

In 1866, an officer in the army, Captain McC., was shot through the left side of his neck. The bullet entered about two inches above the clavicle, immediately behind the belly of the sterno-cleido-mastoid, and passed out about half an inch higher up at the anterior edge of the platysma myoides. During the two following years, the gentleman sank rapidly in consequence of small purulent formations along the course of the sheath of the sterno-mastoid, as well as because of a pharyngeal soreness, which, greatly increased by every attempt at deglutition, amounting at times to a spasmodic seizure. The patient had been pronounced a hopeless consumptive by his medical attendants, when one day a little piece of cloth belonging to the coat-collar, which had formerly been penetrated by the bullet, appeared through the open wound, which very soon after became scarred over, and the patient grew visibly stronger. Being put on a liberal diet, and having had the benefit of a voyage by sea to Key West, he completely recovered; so much so, indeed, that he undertook the management of a farm.

In the year 1868, while cicatrization was going on, he for the first time noticed shooting pains in the arm of the affected side, radiating especially from the little finger. At first, these pains appeared only after great exertions, or in consequence of a 'cold,' but in the fall of 1869, the neuralgia became of daily recurrence and great severity. At the same time the patient was aware of a myotic condition of the left eye (of sudden occurrence), and accompanied with lancing pain. He then came to Dr. Reuling for advice.

The patient was a wiry, though muscular man, thirty-six years old. At the left side of his neck the characteristic scar was seen running in the before-mentioned direction. Immediately above and below the clavicle, and partly in contact with it, there were three separate distinct scars of the formerly fistulous openings. The neck was somewhat constrained in its movements; the head could not be turned very readily to the right, and was a little directed towards the left side because of a slight shortening of the skin and its muscles. The affected arm differed in nothing from the healthy arm in development, structure, or temperature. In following the course of the nerves of the arm, however, and pressing tightly with the thumb, a well-marked painful point was met with over the ulnar nerve at the elbow, as well as near the insertion of the pectoralis major into the humerus; these symptoms pointed to neuralgia consequent upon pressure by cicatricial formations on branches of the brachial plexus.

The left eye differed materially from the right, the pupil being contracted to the size of a pin's head. The pupil was also turned somewhat awry in its direction from below and inward, to above and outward; light had no influence whatever upon it. Neither its size nor its form was affected by the direct light transmitted by the sun, nor when that light was intercepted by the hand being placed before the eyes. That the pupil was contracted to its

maximum extent, was shown by the fact that Calabar bean could cause it to contract no further. At a distance of three inches the finest writing could be read, although the patient declared that he could read only a few words at a time. When he held the eye steady and looked at large objects, he could discern only portions of them, the field of vision showing a considerable concentric limitation.

After a one-grain solution of atropia had been instilled, and the pupil of the affected eye had, after the lapse of half an hour, enlarged to the diameter of the normal pupil on the right side, a healthy state of the internal structures, with the exception of a slight hyperæmia of the choroid and retina, was discernible.

The diagnosis was paralysis of the cervical portion of the sympathetic, caused by the gradual contraction of the cicatrix left after a gun-shot wound.

The treatment consisted in instilling a solution of atropia twice a day for several weeks, as well as in the application of the continued current to the sterno-mastoid and along the course of the ulnar nerve. The neuralgic pain abated in frequency and violence after two days. The effect of the atropia, which during the first few days was dissipated after six or eight hours, became of the usual duration after the sixth day. As soon as this was accomplished, Dr. Reuling prescribed unguentum cinereum, to be made into an ununction with extract of hyoscyamus, and had it rubbed into the scar. Every fifth day he applied one of Heurteloup's artificial leeches, to remove the hyperæmic state of the choroid. After he had been three weeks under treatment, the patient was discharged. The pupil was of nearly the normal size, and the visual power but very slightly impaired.

EVANS ON DISEASE OF THE RECTUM.—In the *Canada Lancet* for September 1 is a communication by Mr. H.B. Evans, on an uncommon and painful disease of the rectum not described in books. He writes: During a long practice I have met with but two cases, whilst two others have been indirectly communicated to me. Summing them all up, the symptoms may be described as follows. There is great difficulty always attending defæcation, which is immediately followed by intense agony in the lower part of the rectum. This pain generally continues from a quarter to half an hour, and then subsides entirely until the next movement of the bowels. When the stools are examined they will be found very small in their diameter, flattened on their surface, and somewhat resembling a ribbon. During the effort to relieve the bowels, the spasm of the external sphincter is so intense that the patient would often give up in despair, a little fluid fæces only passing. Sometimes the sphincter seems more disposed to relax itself and the stools assume a more natural appearance; but on no occasion have they been of a perfectly cylindrical form. A digital examination of the rectum or by bougie causes the most excruciating pain, with violent contraction of the sphincter, so that the finger is removed with difficulty. This contraction extends to the upper limit of the internal sphincter, above which the cavity of the bowel is of the natural size. The mucous membrane of the rectum in the contracted part is perfectly healthy, soft, and not thicker than usual, and moves very readily on the inner surface of the contracted muscle.

This disease is very different in its nature and

consequences from the ordinary stricture of the rectum, and it is of considerable importance it should be distinguished from the latter. In the former the affection is functional, and the prognosis favourable; in the latter, the disease is organic and the termination generally very much the contrary. On a slight examination we should generally confound the two diseases, but when carefully considered they may be distinguished from each other. In both cases the fæces will be found flattened in shape, small in size, and somewhat twisted; but other symptoms present a marked difference. In organic stricture of the rectum, its situation is generally two or three inches above the external sphincter, and there is a sound natural portion of the bowel between the stricture and this muscle. At the seat of the stricture, the coats of the rectum are felt to be more or less thickened and ulcerated, and generally secrete a thin ichorous offensive discharge. This disease has impressed its mark on the constitution, as the sallow countenance, morbid appetite, and wasting of the muscular system imply. In the patient there may be generally traced some cancerous, scrofulous, or venereal taint. On introducing the finger, the agony does not commence until the actual stricture is reached. In the functional disease, the pain commences at the real opening of the anus, surrounded by the sphincter muscle, whilst no alteration of structure in the mucous membrane can be detected. There is no trace of constitutional taint to be observed, and the general health is not immediately affected.

The following is a representative case of this painful disease. Mrs. B., aged forty, had had seven children. About twelve years since she became affected as above described. There was intense pain on relieving the bowels, so much so that the act was avoided frequently when it should have been encouraged; when effected, the motions were either liquid, or thin and flattened. Of late, the general health began to suffer, marked by a train of dyspeptic symptoms, accompanied by neuralgia of the facial nerve. The countenance was pale and bloodless, the bowels costive, and there was great mental depression. In the words of the patient, 'life had become a burden almost too hard to be borne.' On making an examination with the speculum ani, so great was the agony occasioned that syncope took place. This patient had been treated for piles, stricture and fissure, none of which really existed. A slight amelioration of the symptoms took place under the use of belladonna suppositories and laxatives, but no permanent improvement. In conversation with Mrs. B. I found that a sister of hers had been similarly affected, and that she obtained relief by applying to Dr. McLean, then of Kingston, who performed an operation that resulted in a perfect cure. I wrote to Dr. McLean, Professor of Surgery at Ann Arbor, and received from him a courteous reply. 'He recollected the case perfectly; it was one of contraction of the sphincter muscles, and the operation for its cure consisted in a subcutaneous division of the fibres of that muscle.' The operation was performed on Mrs. B. two or three months since. A tenotomy-knife was inserted on each side of the anus parallel with the rectum, and moved backwards and forwards so as to divide all the fibres within the sweep of the half circle. Very little blood was lost. The operation was by no means painful, and the patient declared herself quite relieved, and has been well ever since. J. MILNER FOTHERGILL, M.D.

PUKY ON A CASE OF COMPOUND LUXATION AT THE METACARPO-PHALANGEAL JOINT OF THE INDEX-FINGER.—The following case, which occurred in the hospital practice of Professor Dumreicher of Vienna, is reported by Dr. A. Puky in the *Wiener Medicinische Wochenschrift*, no. 27, 1875. A man, aged forty-one, fell from the top of a ladder which was seven feet in height, and as he reached the ground the whole weight of his body was thrown upon the projected left hand. When the patient was first seen, about a quarter of an hour after the accident, there was found a luxation of the index-finger backwards, with protrusion of the head of the metacarpal bone through a wound on the front of the hand. Frequent attempts were made to reduce the first phalanx by extension and sudden flexion, but without success. Reposition was finally effected by hyperextension and rotation, and then by sudden flexion. To the back of the hand and fore-arm was applied a splint, bent at the position corresponding to the wrist at an angle of 45°. The hand was firmly fixed to this splint, and kept at perfect rest, and an ice-bag was applied constantly over the small wound in front of the metacarpophalangeal joint. This wound healed by first intention, and on the sixteenth day the patient was discharged as cured, and with a freely movable joint. In some remarks on this case, Dr. Puky states that compound luxation of a finger, although not necessitating primary amputation or excision, must be regarded as a serious injury. Reduction is often impossible and always difficult, and the lesion may result in acute articular inflammation with suppuration, in gangrene, or even in tetanus. Indeed, tetanus has frequently been observed after this form of luxation, and fatal cases have been recorded by Dupuytren, Wanderbach, and Cramer. Dr. Puky asserts that laceration of the soft parts in compound luxation of a finger occurs only at the articular furrow on the palmar surface, the wound corresponding usually to the transverse wrinkle; and the portion of bone which protrudes is always the head of the metacarpal bone. Dr. Puky endeavours to prove by reference to the views and clinical reports of modern surgeons, and by the results of experiments, that the obstruction to the return of the dislocated phalanx in cases of this kind is due to interposition of the flexor tendon, and that this interposition of a tendon occurs more frequently than is generally supposed. In cases where reduction cannot be effected by extension and flexion, rotation of the finger will usually be found successful.

RINALDI ON LUXATION OF THE SUPERIOR EXTREMITY OF THE FOURTH METACARPAL BONE.—Dr. Rinaldi, of Algiers, relates (*Le Bordeaux Médical*, August 15, 1875) a case of a police agent whose right ring-finger had been bitten and violently twisted by an Arab prisoner. Two small teeth-wounds were observed on the finger, one in front of, the other behind, the second phalanx. Flexion and extension of the finger were hindered and attended with much pain. There was acute pain on the dorsum of the hand, especially over the upper extremity of the fourth metacarpal bone, which was prominent and very movable. The neighbouring parts were in their normal position, and no other lesion was observed. The dislocated extremity of the metacarpal bone could be readily replaced on slight pressure. At the end of eight days, during which period the hand was kept at rest on a splint, the cure was complete there being no longer any osseous projection on the

dorsum. The author, in commenting on this case, states that difficult as it may seem at first to account for simple luxation at so strong and well-protected a joint as that formed by the fourth metacarpal and its opposed bones, one may, on anatomical examination, be clearly convinced of the possibility of such a lesion. In observing a preparation of a hand deprived of all its soft parts save tendons and ligaments, Dr. Rinaldi found that, on forcibly compressing the member at a part corresponding to the metacarpophalangeal line, so as to exaggerate very much its anterior curvature, the upper extremities of the second and third metacarpal bones remained in position, and that of the fifth metacarpal bone was rotated inwards. As the pressure was increased, the upper extremity of the fourth metacarpal bone gradually slipped backwards from between the opposed facets of the third and fourth metacarpal bones. The superior dorsal ligaments were then much stretched, and finally gave way. This observation, Dr. Rinaldi states, shows that simple and isolated luxation of the upper extremity of the fourth metacarpal bone in a backward direction is possible. The injury may be recognised through the following signs: Dorsal projection and abnormal mobility of the bone, especially at its upper extremity; pain over this extremity increased by movements of the ring-finger, which movements are not free; slight swelling on the back of the hand, most marked over the upper extremity of the fourth metacarpal bone. This prominent portion of bone may be readily replaced on slight pressure; on the removal of which pressure, however, when the lesion is recent, the luxation is immediately reproduced.

W. JOHNSON SMITH.

TAYLOR ON SOME OF THE ELEMENTS OF DIAGNOSIS IN THE DIFFERENT STAGES OF DISEASES OF THE HIP-JOINT.—In a paper read before the New York Medical Library and Journal Association, April 16, 1875, Dr. C. Fayette Taylor thinks 'the symptoms generally relied upon as diagnostic of disease of the hip-joint are worthless for all practical purposes of either anticipating the graver stages of the disease, or of affording indications for treatment.' He has 'no confidence in pain as a symptom from or through which we may justly draw conclusions of any definite value whatever, at any period of disease pertaining to the hip-joint.'

'It is the condition of the muscles which is the most constant and delicate diagnostic indication of disease in the joint.' 'This condition of the muscles may result from various causes, but must not be confounded with nor mistaken for the constant, excessive, unrelaxing, tonic contraction, in greater or less degree, varied or not with spasm, but always present when there is any disease whatever in the joint. The latter may exist so slightly as not to prevent the extremest flexion and extension, or it may exist to such a degree as to arrest all motion as completely as true ankylosis; but it can always be detected when we have a clear conception of its distinguishing characteristics. In the earliest stages of any injury to the joint there may be a mere stiffening of the muscles, not enough perhaps to prevent motion, but always enough for the educated touch to detect what I have named, a reluctance to relax. It is quite independent of the patient's volition, though it often requires careful management to prevent the voluntary efforts from mingling with and obscuring this condition. In the beginning, this symptom, being

less pronounced, may be overlooked; and later, when it has increased to its greatest degree, it may be mistaken for contracture or permanent shortening; and it is also often mistaken for ankylosis when it is sufficient to arrest motion.'

One is a physiological act, the other is a physical effect. Now this physiological condition does, and necessarily must, exist during the continuance of any exciting cause, and it therefore becomes symptomatic of the cause which excites it. And it is of itself an important element in perpetuating and increasing the very condition which produces it.

NEPVEU ON OSTEOCLASIS AND OSTEOTOMY FROM AN ORTHOPÆDIC POINT OF VIEW.—Dr. Nepveu (*Archives Générales de Médecine*, September, 1875), after briefly noticing the history of osteoclasia, proposes especially to pass in review the practice of Billroth and Volkmann.

Manual and mechanical osteoclasia have been employed up to the present time in cases of four different classes, viz., (1) badly united fractures; (2) articular deformities resulting from ankylosis; (3) bent bones in rickety subjects; (4) deformities resulting from old dislocations.

Of the various methods of producing osteoclasia, the author deduces that, first, that of manual force, and next, that of Rizzoli, have been most frequently employed.

In his summary he states, under the head of 'Dangers of the Operation,' (1) the rupture may not take place at the desired spot, the operation then becoming useless; and (2) the operation may be dangerous if the pressure on the part to be broken have been great enough to cause accidents, such as sloughs and so on.

Taking into account all circumstances, osteoclasia, when performed with judgment, is generally a beneficial operation. In the majority of cases the artificially fractured limb is in the same state as a limb accidentally fractured subcutaneously. In the 108 unselected cases of osteoclasia referred to in this work there was not a single accident.

The therapeutic results seem satisfactory in the treatment of deformities produced by ill-formed callus (De la Motte, 1699, Dupuytren, Gurlt) and in rickety deformities (Volkmann, Billroth). In old dislocations, the operation only corrects a part of the deformity, the angular deviation (Volkmann). The rupture of bony ankylosis is sometimes sufficient to re-establish the normal position of the limb, but not always to restore mobility. Any attempt of the sort should be avoided, when the ankylosis is of very long standing, when the arteries are atheromatous, when the periarticular tissues are matted together, or when the bones themselves are much atrophied.

JOHN CROFT.

LEFFERTS ON INTRALARYNGEAL SURGERY.—In the *New York Medical Record*, June 25, Dr. Geo. M. Lefferts reports two cases of intralaryngeal growth successfully removed by incision. In speaking of the various instruments, he says: The instrument which was devised some time ago by Professor Stoerk will fulfil many of the indications desired, and in a very simple manner—the principle involved being that the wire should be protected from contact and disarrangement, and this is accomplished by covering it with a double oval, rigid, metallic guard, through which the loop, fully protected, runs; and finally, traction being made upon it by means of

the handle to which the extremities of the wire are fastened, compresses the growth between itself and the upper edge of the guard. These metal guards are provided of different sizes, so that one principal objection to the instrument, viz., that the loop cannot be made to assume the diverse forms suited to the shape of the variously formed neoplasms to be extirpated, is partly overcome. A second objection which has been urged against *écraseurs* in general, that the use of the fine wire causes the instrument to act practically as a guillotine, and to rather cut than crush off the growth, can hardly be urged against this instrument, which, carrying as it does, a large wire, can hardly cut, but must crush its way; and, furthermore, the pressure being applied gradually, the growth will be removed in strict accordance with the true principle of the *écraseur*.

The process, of course, requires time, and on this account this form of instrument can only be used in tolerant cases and on growths of some size, which, on account of their location, are readily seized and comparatively quickly removed. Very large growths, or those of a vascular nature, for the removal of which the *écraseur* is thought necessary, will probably demand the preliminary performance of tracheotomy, as a necessary precaution against disastrous results.

A still further improvement in the instrument—suggested, I believe, by Gibb, but elaborated by Stoerk—and a very desirable one when operating for the removal of small growths, consists in the substitution of a small metal tip, perforated in four directions, for the oval protecting guard. The apertures in this tip are threaded with the wire, the direction of the loop being either in an antero-posterior or a transverse line, according to the location of the neoplasm; and the wire, being thus held by the holes, is effectually prevented from turning from the given direction—a very common occurrence with the old tube-form of instrument. The wire used with this form of apparatus also assists in attaining this desirable result; that formerly used, thin iron or silver wire, very easily losing its shape if pressed upon while entering the larynx, and usually requiring many readaptations to the form of the growth. The steel wire, as used for musical instruments, will be found preferable, having the necessary elasticity and firmness, and therefore fulfilling the indications required.

In the first case, the size of the growth rendered the employment of a large guard necessary in order to pass successfully over it, and the difficulty of easy introduction into the larynx was thereby increased, the size of the guard rendering contact with the laryngeal walls almost impossible of avoidance, and the immediate contraction of the parts which followed obstructed somewhat a view of the entire process of extirpation. By introducing the instrument carefully, however, guided by the reflection in the laryngeal mirror, and causing it to enter the larynx far posteriorly between the arytenoid cartilages, where the greatest amount of free space presented itself, it was possible to then pass forwards and see the apex and part of the neoplasm within the loop, before firm pressure forwards and subsequent constriction of the growth were performed. The first attempt failed, owing to the barrier which the hypertrophied false cords presented anteriorly, and the requisite force necessary to press between them and over the growth being under-estimated; and resulted in carrying the whole larynx more or less forwards

before the instrument, and consequently altered so materially the relative positions of the growth and the wire-loop, that complete extirpation failed, and only the apex of the neoplasm was removed. On a second attempt, a few moments later, external manipulation of the larynx was called into requisition, and it was found not only practicable, but also easy, while an assistant first elevated the organ and then pressed it slightly backwards and held it steadily, to carry the oval guard, with its contained wire-loop, directly forwards, nearly into the anterior commissure, and upon drawing up the wire to crush through the pedicle of the neoplasm.

Some embarrassment in the respiration attended the procedure, but the amount of dyspnoea was not excessive and caused no anxiety. Immediate improvement followed the extirpation of the growth, the patient drawing deep, full inspirations, unattended by stridor, and expressing herself in marked terms as to the amount of relief that had been afforded; and a subsequent examination with the mirror showed that, the obstruction being removed, the approximation of the vocal cords was nearly perfect. The stump of the pedicle was seen to be located just above their anterior insertion, reaching well down towards their superior surfaces.

The subsequent treatment of the case presenting no unusual or interesting points, may be summed up in a few words. The patient remained under observation and treatment for several weeks, during which time applications directed against the catarrhal condition of the parts were regularly made to the larynx. The progress towards complete cure, though slow, was sure, being delayed only by the chronic form of the disease and the general hypertrophy of the tissues, and resulting finally in the patient's discharge, the voice being clear and forcible, the respiration unembarrassed and easy.

In the second case, one of papillomatous growths upon both vocal cords, attempts were at once made to remove the various growths by means of the laryngeal tube-forceps; but owing to their soft and friable nature, the instrument was found to be unsuited for complete extirpation, and Stoerk's guillotine was substituted. With this it was designed to cut the growths cleanly away from the cords at their bases, or even a line below that point, and to remove them entire, leaving no scattered portions behind to serve as a nucleus for the development of new outgrowths, and the result proved its applicability and thoroughness for all the growths, with the exception of those at the anterior commissure. Three sittings were necessary to effect complete clearance of the vocal cords, followed by one during which the 'ball-shaped' cutting forceps of Winternich were used to remove the small growths at the anterior commissure of the cords.

No untoward incident occurred during these steps of the operation; the patient, being well trained to bear the introduction of instruments into his larynx, bore the various stages of the procedure well; the latter being of short duration and conducted at frequent intervals.

The hæmorrhage following the excision of the masses was but slight, and readily checked by cold and astringent gargles, and the application of ice externally over the larynx.

The growths having been removed, approximation of the cords was rendered possible, and the good result of the operation was demonstrated a few days later to the eye, in the nearly perfect closure of the

glottis, and to the ear by the full, almost clear, voice of the patient, especially in the higher notes. This clearness of voice was subject to partial relapses, due either to an accidental access of the catarrhal inflammation of the cords, or to an overuse of the voice, exhausting the impaired nerve-force of the larynx; both of these conditions improved, however, as time elapsed, and some few weeks later the verdict of cure could be pronounced, with a guarded prognosis regarding recurrence of the growths.

BOECKEL ON RESECTION OF THE SCAPULA.—

Dr. Boeckel, in a communication made to a general meeting of the medical men of the Lower Rhine, and reported in the *Gazette Médicale de Strasbourg* for 1874, related two cases of resection of the scapula. One was a case of resection of the acromion and of the external third of the spine of the scapula. The cure was completed in two months, and the movements of the arm were perfectly re-established at the end of six months. In the second case there was caries of the scapula; subperiosteal resection of the scapula was performed, leaving the articular portion, and the inferior angle. Cure was effected in between two and three months. At the end of between three and four months there was complete bony regeneration, and at the end of six months use of the limb was restored. Dr. Boeckel thus describes the method of operation employed.

1. Tegumentary incisions. A first transversal incision was performed, starting from the extremity of the acromion to the level of the fistula, that is to say, almost as far as the external third of the spine; then instead of following the spine throughout its length, like the majority of surgeons, we got near to the upper edge of the bone, hoping in this way to thoroughly lay bare the upper part of the scapula and to protect ourselves against the objection made to the transverse incision of Langenbeck, Syme, etc., which but imperfectly uncovers the infraspinous fossa. It did not occur to us at the time that the caries could be so extensive, and we proceeded to rasp the acromion and the commencement of the spine by detaching the subscapular muscle and the periosteum from their attachments to the bone. This process was very easily performed, favoured by the slightness of the periosteal adhesions. When I came near the spinal edge I found this portion diseased. An incision, in the first instance perpendicular, keeping along the spinal edge, and reaching to the bone, was made over a space of a few centimètres; but it soon became necessary to prolong it on account of the caries, which extended further than had at first been supposed, so that finally there was a vertical incision nine centimètres long.

2. Denudation of the bone was then proceeded with rapidly. I separated the muscle on the side of the infraspinous fossa, as far as above the coracoid notch, that is to say, until close to the base of the coracoid apophysis, without finding the subscapular nerve; on the side of the infraspinous fossa the muscles were detached as far as two finger-breadths of the inferior angle, which was healthy; the lower fibres of the infraspinatus were bisected; the insertions of the teres major were left completely intact. I afterwards tried to raise the scapula and to roughen a portion of the subscapular fossa, in order to pass a chain-saw and leave the lower angle of the bone in the wound. A certain number of the fibres of the subscapularis were divided, and section of the bone

was then performed. I was then enabled to lay hold of the scapula, draw it out of the wound, and lay it entirely bare. This process was easily performed, and was continued on the two surfaces almost as far as the glenoid cavity. As the vicinity of the cavity appeared relatively healthy, the chain-saw was passed through the coracoid notch, and the neck of the scapula was divided. At this moment, the subscapular artery gave out a strong jet of blood, and was taken up with much difficulty, but after some time was successfully tied. The amputation was terminated by the division of the acromio-clavicular ligaments.

RECENT PAPERS.

- Cavernous Cystic Angioma of the Rectum. By Dr. Leboucq. (*Annales et Bulletin de la Société de Médecine de Gand*, 1875.)
- On Transfusion of Blood, performed on Insane Patients at the Asylum in Alexandria. By Dr. Ponza. (*Annales de la Société de Médecine de Gand*, September, 1875.)
- Report presented by Dr. Desnos on a Case of Sudden Death, which occurred Three Hours after Thoracocentesis. (*L'Union Médicale*, October 14.)
- Note on the After-Treatment in Excision of the Knee-Joint. By Dr. John Chiene. (*Edinburgh Medical Journal*, October, 1875.)
- Burns and Scalds. By Dr. Gay. (*Boston Medical and Surgical Journal*, September, 1875.)
- Historical and Critical Review of the Different Methods of Dressing Wounds. By Dr. Gross. (*Revue Médicale de l'Est*, October, 1875.)
- A Case of Retropharyngeal Abscess. By Dr. Pepper. (*Philadelphia Medical Times*, September 25.)
- A new Urethrotome for Internal Urethrotomy. By Dr. P. H. Watson. (*Lancet*, October 23, 1875.)
- On early Resection in the Treatment of Diffuse Phlegmonous Periostritis, and especially of the Subperiosteal Resection of the whole of the Diaphysis of the Tibia. By Dr. Duplay. (*Journal de Thérapeutique*, October 25.)
- Surgical Contributions. By Mr. P. J. Hayes. (*Dublin Journal of Medical Science*, October, 1875.)
- Historical Sketch of Lithotomy. By M. Tillaux. (*L'Union Médicale*, October 28.)
- On the Clinical Value of Subastragalar Amputation. By M. Maurice Perrin. (*Bulletin Général de Thérapeutique*, October 30.)
- On Surgical Anæsthesia in Children from the Internal Administration of Chloral. By Dr. Bouchut. (*Ibid.*)
- Retro-uterine Hæmatocœle cured by the topical Application of Ice alone. (*Gazette des Hôpitaux*, October 16.)
- Treatment of Fractures of the Leg by the direct Application of the Plaster-Splint. By Dr. Desprès. (*Bulletin Général de Thérapeutique*, October.)
- A new Method of Preparing Plaster of Paris Bandages. By Dr. Foster. (*Boston Medical and Surgical Journal*, October 7.)
- Stricture of the Urethra in the Female, and its Treatment by Electrolysis. By Dr. R. Newman. (*Ibid.*)

MATERIA MEDICA AND THERAPEUTICS.

CLARKE ON THE CONTINUED AND THE FREQUENT DOSE.—In the *New York Medical Journal* for September, is an article of much interest on the continued and the frequent dose, by Dr. Edward H. Clarke. He says:

The systematic treatises on materia medica with which American and foreign medical literature abounds usually give, near the close of their description of the various drugs whose virtues they rehearse, the appropriate dose for therapeutical use, and also the toxicological dose, if the article is capable of exerting any poisonous action on the human economy.

Thus Waring, after describing the salts of morphia, adds, 'Dose of the morphia salts, gr. $\frac{1}{8}$ - $\frac{1}{4}$ up to gr. 1.' Stillé concludes his account of the carbonate of lithium with the statement that it 'may be administered in doses of from one to five grains three times a day, dissolved in not less than four ounces of water.' The United States Dispensatory, speaking of the sulphate of quinia, says, 'The dose varies exceedingly, according to the circumstances of the patient, and the object to be accomplished;' and then adds that, as a simple tonic, a grain may be given three times a day, or more frequently; that in intermittents, from twelve to twenty-four grains may be given between the paroxysms, in divided quantities, according to the condition of the patient and other circumstances. These and similar statements with regard to the doses of medicines, that may be found in all works on materia medica and therapeutics, are essential. They are true as far as they go, but they do not represent the whole truth. They fail to give to the student and practitioner an accurate notion of what an important factor in therapeutics the dose is; and especially do they fail to convey an accurate notion of the therapeutical importance of variation of dose and method of administration.

In saying this, I do not forget that we are told by all works on materia medica that doses should vary with age, sex, temperament, idiosyncrasy, disease, habit, and the like. This is all true. It has been confirmed by the experience and observation of centuries, but it is not the whole truth. It does not give an adequate notion of the therapeutical power which can be exerted by appropriate physiological doses.

It is the object of this paper to call attention, as briefly as possible, to this therapeutical power, and especially to the action of what, for want of a better designation, may be called the therapeutical action of continued and frequent doses.

Doses of medicines may be appropriately considered under four distinct heads or classes, namely: 1. Single doses; 2. Continued doses; 3. Frequent doses; 4. Toxicological doses. The first and last of these, or the single and the toxic dose, are the doses given in treatises on materia medica, and are recognised as representing the therapeutic and poisonous action of any given drug. It is unnecessary to dwell upon them, for they are universally understood. But the bare statement of what is the legitimate single or average toxicological dose of an article like opium, for instance, gives no adequate or intelligent notion of what the continued or frequent dose of the same drug is; nor does it give any adequate or intelligent notion of the physiological action and consequent therapeutical power of its continued or its frequent dose.

Let us consider first the continued dose. By this is meant the administration of a drug in such a way that the elimination of one dose shall not be completed before the absorption of the following dose has commenced. By this method of administration the blood is kept constantly charged with the drug. . . . The difference between the single and the continued dose is the difference between keeping the blood constantly charged with the article administered and allowing the blood not only to free itself from one dose before a second dose is administered, but making the intervals between the doses so long that the blood shall be practically a longer period unchanged than charged with it.

The observance of this difference is important physiologically and therapeutically. The neglect

of it explains much of the confusion and discrepancy that may be found in the statements of different observers with regard to the action of drugs. Many of the phenomena, both physiological and toxicological, that follow the exhibition of the continued, do not follow that of the single dose. And, what is in fact a corollary from this, many therapeutical results may be obtained by the continued that cannot be got from the single dose. It is also to be remarked that, although few or no practitioners write as if they were aware of the important difference here referred to, yet the larger number of observations evidently are founded on the action of the continued dose. Physiologists, on the contrary, seem to have experimented oftenest with the single dose.

The continued dose means keeping the blood continuously charged with a medicine by a succession of single doses. The single dose is an appropriate quantity given once or oftener, without keeping it continuously in the blood. The therapeutical value of these doses and the physiological difference between them are of great importance.

Let us look at some illustrations of this difference and value.

Ammonia and its salts 'readily enter the blood, and must to some extent increase its alkaline reaction; but from their volatility and high diffusive power they are rapidly eliminated, and hence their action on the blood and the organs of the body is a very transient one.' The elimination of a single dose of carbonate of ammonia is practically completed in an hour or two after it is administered. Its physiological action is correctly stated by the *United States Dispensatory* to be 'stimulant, diaphoretic, antispasmodic, powerfully antacid, and in large dose emetic.' In consequence of this action, it is largely used in depressed conditions of the vital powers. This is the well-known action of a single dose or of a few doses given near together, after which the system is freed by elimination from the drug. No change is produced in the quality of the blood. If a continued dose of ammonia is given, that is, if it is given so often, say every hour for several days, that the blood is continuously charged with it, a very different set of phenomena from those just described appear. 'When ammonia or its carbonate is administered'—in this way—for some time to animals or man, the effect is to modify the blood-corpuscles; they become easily soluble, crenate at the edge, many-sided, colourless, transparent, collapsed, and loosely agglomerated, but not in rolls; and the blood when drawn, or after death, is absolutely fluid or loosely coagulated.' These phenomena were observed by Dr. B. W. Richardson, of London. They closely resemble the changes in the blood which occur in patients suffering from typhoid and typhus fevers. Hence it appears that the single dose of ammonia produces rapid and effectual stimulation of the heart, while the continued dose of the same article alters the quality of the blood, and notably of the blood-corpuscles. The single dose exerts a therapeutic, the continued dose a toxic action on the economy. It is unnecessary in this presence to dwell upon the obvious therapeutic inferences that follow from these data, at least so far as ammonia is concerned.

Gallic acid is another illustration of the difference between the single and the continued dose. This acid is rapidly eliminated. Physiologists tell us that, in a couple of hours after it has been swallowed,

it has practically left the system, by way of the kidneys, to such an extent that it exerts no appreciable action upon the blood after that length of time. Gallic acid has a well-deserved reputation for controlling certain forms of hæmorrhage. Suppose it is given in single doses of ten grains, more or less, three times a day, which I apprehend is the usual method of administration, the blood will be subjected to the restraining action of the acid only about six hours out of the twenty-four; not long enough to hold steadily in check a hæmorrhagic disposition. Suppose, now, that instead of the single, the continued dose is administered, by which the ratio of elimination to absorption is constantly regarded, and the blood kept continuously charged with gallic acid; the result will be a continuous action upon the blood, and not an intermittent one. It is needless to point out the fact that continuity of action is very sure to give rise to phenomena that will not follow intermittence.

No drug exhibits in a more striking light both the physiological and the therapeutical differences between single and continued doses than alcohol. The partial, confused, and incomplete recognition of these differences by various observers and experimenters, who have examined and described the physiological action of alcohol, goes a great way towards explaining the various and often discordant results at which they have arrived. We learn from the experiments of Messrs. Lallemand, Perrin, and Duroy, as well as from those of Drs. Anstie, Parkes, Smith, Binz, and others, that the disappearance of a single dose of alcohol from the system, either by elimination from it or combustion in it, or by both processes, practically takes place in about six or eight hours after its ingestion. Traces of alcohol may be found in the blood and in the excreta for a much longer period than this; but so much of it leaves the system within eight hours that what remains of any single dose beyond this length of time has no real physiological value. A person who takes a dose of alcohol, in the shape of wine or other alcoholic liquid, once in each twenty-four hours, subjects his organism to the action of alcohol about one-third of that time, and leaves it free from that action about two-thirds of the same period. A person who takes what is known in non-scientific language as an 'eye-opener' in the morning, wine with his dinner or lunch, a digester in the afternoon, and a 'night-cap' on retiring, takes the continued dose of alcohol. His blood is continuously charged with alcohol to a greater or less degree. There are phthisical patients who imitate this method of ingesting alcohol, and take a daily continued dose of it, keeping their blood charged with it more than two-thirds of the time.

Alcohol taken in a single daily dose, by which the blood is practically free from it more than two-thirds of the time, and alcohol taken in a daily continued dose, by which the blood is practically charged with it more than two-thirds of the time, are substantially different drugs, which produce different physiological phenomena and are or should be employed for different therapeutical ends. This is not the time, nor does it fall within the scope of this paper, to describe these differences in detail. It is sufficient for my purpose to indicate their existence as illustrations of the single and the continued dose.

The bromide of potassium affords another and most pertinent illustration of the different physiological and therapeutical action which the single and

the continued dose of an article may produce. I pointed out these differences in a comparatively recent monograph on the physiological and therapeutical action of the bromide of potassium, and will not repeat them here. Illustrations of single and continued doses, and of the therapeutical importance of recognising them as factors in the treatment of disease, might be multiplied indefinitely; but enough has been said to call your attention to them and to emphasise their importance. It was impossible to recognise and use them as separate therapeutical factors till physiological observation and experiment had discovered the time and method of the absorption and elimination of drugs, and the ratio of the former to the latter; nor can the practitioner apply them clinically till he knows, at least with approximate accuracy, the way every article he uses gets into and out of the system, the length of time it remains in the system, and its behaviour while there.

The administration of medicines to the sick, without regard to the different and often opposite results, physiological or therapeutical, that follow the single and the continued dose, is both unsatisfactory and unscientific. It is unsatisfactory because it fails to secure the legitimate action of medicinal agents. It is unscientific, because it ignores some of the most important physiological conditions upon which scientific therapeutics rest. The time has come for the clinician to recognise and use these and other phenomena of the *modus operandi* of drugs which the physiologist has discovered and whose accuracy he has demonstrated.

Secondly, the frequent dose is the giving of a medicine so as to impart to the organism some one or more of its actions, whether primary or secondary, with great rapidity. It is hitting blow after blow in quick succession, upon some organ which it is desirable to affect, in accordance with evident indications, with rapidity and power. It is usually, perhaps always, some action of a drug, manifested soon after its absorption, which it is desirable to obtain and which can be obtained by the frequent dose. Obviously the administration of the frequent dose is limited by the physiological behaviour of the system under its influence. After a certain period the frequent dose is equivalent to a full single dose or to a toxic one.

The action of opium almost immediately after absorption illustrates the frequent dose. One of the earliest physiological actions of opium after its ingestion, rarely after subcutaneous injection, is stimulation of the nervous system, and of the circulation. This is fully recognised by obstetricians, who advise its exhibition as one means of controlling *post partum* hæmorrhage. Stimulation is a primary effect of opium that soon passes over, the length of time varying with the quantity given and with the idiosyncrasies of patients, into an opposite condition. The administration of an appropriate quantity of opium every five, ten, or fifteen minutes, that is, the frequent dose of it, will prolong and enhance its primary stimulant action. How desirable it sometimes is to prolong the primary stimulating action of this invaluable agent, I need not remind those who hear me.

The physiological action of aconite upon the human economy illustrates the same principle. Fleming's admirable observations upon aconite have taught us the powerful sedative influence that five drops of the tincture of the root exert upon the system. If, instead of giving five drops in a single dose, half a drop is given every half-hour ten times,

or one drop every hour five times, a different physiological and consequently a different therapeutical result is attained from that of a single dose of five drops. In this case a less depressing sedative action is obtained by the frequent than by the single dose.

[In reference to what is said in the beginning of the article 'that doses should vary with age, sex, temperament, idiosyncrasy, disease, habit,' etc., it must be borne in mind that doses really are apportioned to the weight, and, as is found in experimentation, the dose must be apportioned to the size of the animal. The principle is seen in our practice of a less dose for women and for children, the less or younger the child the smaller the dose.—*Rep.*]

WOOD ON SUBCUTANEOUS INJECTION OF CHLOROFORM.—In the *Canada Medical and Surgical Journal* for July, is a communication by Dr. G. Wood on the subcutaneous injection of chloroform in the treatment of facial neuralgia. He says that he saw it recommended in some American medical journal, and availed himself of it in the treatment of one of the severest and most obstinate cases of facial neuralgia, that he ever met with.

D. C. H., aged about forty, with dark hair, eyes and complexion, very spare, weight 125 pounds, had suffered from facial neuralgia of the left side of the face since 1854. He had undergone all systems of treatment with little or no relief. In 1872 he had the lower jaw trephined and a portion of the nerve removed; this gave him relief for several months, but eventually the neuralgia returned, if possible more severely than ever. He first came under Dr. Wood's care in August 1873. He gave him different iron tonics, bark, hypodermic injections of morphia, croton-chloral-hydrate, and various neuralgic pills, with but temporary success. In August 1874, Dr. Wood injected fifteen minims of chloroform underneath the mucous membrane of the lower jaw, as near the exit of the mental branch of the fifth pair as he could. It gave him entire relief in an hour, but caused partial paralysis of the muscles of the left cheek. In a week he repeated the injection, and gave him drachm-doses of the elixir of guarana three times a day. In September and December, and also in April, he had a very slight return of the pain, each recurrence being less severe. At each of these times Dr. Wood repeated the chloroform, and he now seems to be entirely well.

Dr. Wood's partner, Dr. Rose, had a lady patient, unmarried, aged about forty-five, who had been a terrible sufferer from the same disease for seventeen years, had consulted the most eminent men in this and foreign countries, and had tried all the prescriptions recommended. The only thing that gave her any relief was hypodermic injections of morphia. She was obliged to use them, sometimes several times a day. Her mind and morals were very much disordered. Dr. Rose tried the hypodermic use of chloroform, and she is now entirely well. The injection of chloroform is extremely painful unless preceded by an injection of ten or fifteen minims of Magendie's solution of morphia,

J. MILNER FOTHERGILL, M.D.

BOUCHUT ON THE PHYSIOLOGICAL AND THERAPEUTIC EFFECTS OF ESERINE OR PHYSOSTIGMINE.—M. E. Ferrand writes to *La France Médicale* of August 18, an article on the action of eserine, embodying the experience of M. Bouchut, who has given it 437 times, either by the stomach or sub-

cutaneously, sometimes using the pure alkaloid, sometimes its sulphate. He has chiefly used it for chorea in children, and he declares that the results differ widely from those anticipated from experiments on animals. The tolerance or the excitability manifested by rats, dogs, rabbits, or guinea-pigs is no guide, he says, to the effects in human beings. Its use in medicine is still much restricted. It is used to contract the pupil, and has been tried a few times to calm the muscular irritability of tetanus. M. Bouchut has used it in the treatment of chorea, the patients being little girls of seven to twelve years of age, the medicine being given in 205 cases in pills containing two to five milligrammes ($\cdot 03$ to $\cdot 07$ of a grain), whilst in 232 cases the like dose has been given subcutaneously. In the case of the larger dose, given subcutaneously, the following effects are said to follow in about five minutes: Pain, distress, tears, loud outcries, due to pain of an agonising character at the epigastrium; pallor, slight chilliness, perspiring face, nausea, and expectoration of clear fluid or froth, cramps in the stomach, scanty glairy vomit, with much pain; and paralysis of the diaphragm, more or less marked in different children, rendering vomiting difficult. The scene in the ward resembles sea-sickness. Marked contraction of the pupils was only observed once, and slighter contraction twice. In all the rest the pupils were dilated, but contractile. The pulse, normal in some, has been diminished in volume and number in others, though never less than sixty-four. There has been no colic, no diarrhoea. Respiration has been painful and laboured by hyposthenia, or by diaphragmatic paralysis, not cyanotic. In all, the ribs were well raised, but the diaphragm, instead of descending, rose in the chest, dragging in the abdominal wall. There was no anæsthesia, and no sensorial or intellectual disorder. These phenomena last about three hours. During this time the choreaic movements are arrested. In ten out of twelve, when the effects of the eserine wear off, the movements recur, but less powerfully than before. With the smaller doses of two and a half milligrammes ($\cdot 04$ or $\frac{1}{25}$ grain) paralysis of the diaphragm, at least in any marked degree, was never produced; and with still smaller doses the distress and spitting were not present. The sulphate acts in a similar way, in the same doses. After two or three hours, the effects go off, and the children seem no worse. Hence from fifteen to twenty milligrammes, or one-fifth to one-third of a grain, can be given, in divided doses, in the twenty-four hours. The treatment of chorea in this way takes, on an average, about ten days.

HEDLER ON POISONING BY ATROPINE: MORPHIA-TREATMENT: RECOVERY.—Dr. Hedler, of Aschersleben, writes to the *Berliner Klinische Wochenschrift*, of August 23, 1875, and gives the details of the following case. He had given a lady, on whom he had previously operated for cataract, an atropine solution containing $0\cdot 06$ of sulphate of atropine in 80 grammes of water (about equal to two drachms of a four-grain solution). As these eyedrops had only been used twice at the furthest, more than half a grain of the atropine must have been contained in the bottle. A child aged fifteen months drank about half of this, but probably spat out a good deal of it. This happened about 6 P.M. At 8.45, except perhaps slight dilatation of pupils, there were no symptoms. Slight contractions of the limbs set in at 10 P.M. At 10.30 there were recurrent contractions,

at one time of the upper extremities, at another of the lower. These cramps were, however, slight. There was also frequent swallowing of saliva. Pulse 120, respiration quickened, face red and hot, pupils moderately dilated. One-sixth of a grain of morphia was ordered in four doses. The convulsions soon became more urgent—tonic and clonic spasms occurring rapidly. The pulse rose to 200, and then became uncountable. The head and chest became covered with a rash like scarlatina. The eyes rolled ceaselessly. The pupils were never very widely dilated. Soon the child began to smile and stretch out towards an imaginary bottle; then he stared at one corner of the room, and threw himself suddenly with a loud cry into his mother's arms. All this occurred between eleven and twelve at night. The four doses of morphia were given at intervals of a quarter of an hour. As no effects were produced, a subcutaneous injection of one-seventh of a grain of morphia was given (one-tenth of one gramme of a solution containing one in twenty) with some amelioration of the symptoms, but return of the delirium. A second hypodermic solution of the same strength was given. In five minutes all spasms ceased, and the child slept tranquilly till next day. The pulse was then 120, and, except for a little weakness and anorexia, the child was well. In two days there was no bad symptom. Dr. Hedler remarks that the long period of latency of symptoms (full four hours) is very interesting. Although Nothnagel (p. 38, 1874), will not allow that morphia is an antidote to atropine, it appears to have proved itself such in this case.

CARLOS ON THE TREATMENT OF WHOOPING COUGH BY CARBOLIC ACID.—*L'Union Médicale* (no. 91), for August 3, 1875, contains a letter from Dr. Domingos Carlos (of Bahia), stating that whooping cough is often frequent and severe in the West Indies. The epidemics are chiefly in autumn, and adults not seldom suffer. He has long suspected that the sporules of some fungus were the cause of the disease. On this theory he began in May, 1874, to make trials of carbolie acid. He chose an obstinate case, a child of two years old, whose cough had resisted all common means of treatment. The following formula was employed:

- R. Crystallised carbolie acid, 25 centigrammes.
Concentrated orange-flower water, 5 grammes.
Gum julep, 50 grammes.

To take four to six teaspoonfuls daily. [This is about equal to crystallised carbolie acid, four grains, concentrated orange-flower water ʒjss, mucilage to ʒij.] The improvement in three days' time was most marvellous, and Dr. Carlos's subsequent success has induced his colleagues to use the same remedy. [Without dogmatising on the cause of whooping-cough, the reporter thinks it noteworthy that in all the cases at the North-Eastern Children's Hospital, in which he has examined with the microscope the viscid mucus coughed or vomited up by children with this disease, and these amount to some dozens, he has found not only bacteria and bacteroids, but also sporules and mycelium, much resembling those of the *Oidium albicans*, with finer ones like the *Leptothrix buccalis*. The successful use of alum may also be explained on a similar theory.—*Rep.*]

W. BATHURST WOODMAN.

SISTACH ON THE TREATMENT OF PALUDAL FEVERS BY ARSENIC.—This paper (*Archives Générales de Médecine*, September, 1875) comprises the fruits of a large experience gathered at the military

hospital of Bona, in Algeria, one of the most malarious stations in that malarious colony. The author arranges his cases under four heads: intermittent fever, remittent fever, pernicious paludal fever, and paludal cachexia. The first group includes 229 cases, of which 136 were quotidian, seventy-four tertian, eleven quartan, five irregular, and three masked. Algerian intermittents are most frequent and severe during the summer months. The number of paroxysms is always greater in the first attack than in subsequent ones; and this difference is observed, whatever be the mode of treatment employed. Indeed, M. Laveran noticed it in his account of eighty-eight cases treated on the expectant method at Blidah. In comparing the results of treatment with those of simple expectation, it is indispensable that the cases should all have been subjected to the same telluric and climatic conditions. In a comparatively healthy locality, such as Blidah, recovery without specific treatment is not uncommon; whereas at Bona, where the patient continues to be exposed to miasmatic influences of a most intense kind, attempts at expectation may prove dangerous, if not fatal. Each of the 136 cases of quotidian ague furnished an average number of 1.7 paroxysms after the treatment by arsenious acid had been begun; this average only amounting to 0.75 in the seventy-four cases of tertian fever. Frémy, Fuster, and Girbal had previously noticed that the febrifuge action of arsenic manifested itself more promptly in the latter than in the former variety of the disease.

The following are the rules laid down by the author for the administration of the remedy. They are essentially the same as those originally promulgated by Boudin; and the failures which have been recorded since his time by various observers must be attributed to their neglect of those details on which the certainty and the safety of arsenical medication depend. 1. The arsenious acid must be given in solution. The previous administration of an emetic is only necessary when the stomach is overloaded. 2. The remedy must be freely diluted, and given in very small doses, frequently repeated. 3. The quantity taken in twenty-four hours must be proportionate to the severity of the fever, to the length of time it has lasted, and to the nature of the locality as regards malaria. 4. We must begin by giving from three to five centigrammes daily (.45 to .75 grain), to be continued as long as the paroxysms recur. 5. After the paroxysms have ceased to recur, the dose ought to be diminished by one centigramme every day; but the patient must continue to take about one centigramme daily for some ten days after he is apparently free from symptoms. When these directions are carefully attended to, the use of arsenious acid is wholly free from risk. A few cases of conjunctival irritation, sometimes associated with œdema of the eyelids and cheeks, occasional colicky pains with slight diarrhœa, and in very rare instances nausea and vomiting,—such are the only accidents which M. Sistach has ever observed. He concludes that for the treatment of intermittent fever arsenious acid is as effectual as quinine, and more effectual than cinchonine or quinium; though as regards quickness of operation, quinine must continue to hold the foremost place. The extreme cheapness of the mineral remedy is, of course, its chief recommendation; by substituting it, even partially, for quinine, many hundred thousand francs may be yearly saved on the war budget alone.

Under the second head, that of remittent fever, the author's results are by no means favourable. The remittent form of the disease is notoriously more obstinate than the intermittent variety, and demands much larger doses of whatever febrifuge remedy we may choose to employ. Now arsenious acid, if given in the necessary quantities, invariably aggravates the gastro-intestinal symptoms to a dangerous extent. Moreover, the comparative slowness of its operation renders it unsuitable for the treatment of a disease which does not bear delay. It is equally unsuitable, and for the same reasons, as a substitute for quinine in the treatment of the pernicious variety of paludal fever; of three cases treated by M. Sistach with arsenious acid, two died. As regards the divers forms of paludal cachexia, the author asserts that neither quinine, nor arsenic, nor any other drug, is of any avail; the patient's only hope of recovery lying in removal to a more healthy region, together with the diligent employment of hydro-therapeutic measures.

AUBERT ON THE COMBINED APPLICATION OF NITRATE OF SILVER AND METALLIC ZINC.—Professor Corradi having advocated the superiority of this method, especially for the cauterisation of fungating syphilitic excrescences, M. Aubert (*Lyon Medical*, October 17, 1875) endeavours to explain the way in which the zinc assists the action of the silver salt. The diseased surface is touched with the solid nitrate, or better still, with a concentrated aqueous solution of the salt, in the usual way; a pencil of metallic zinc is then rubbed lightly over the milk-white patch, which instantly assumes a black colour. The following are the chemical changes which take place. By contact with the tissues, the nitrate of silver is partly converted into an albuminate and chloride of the metal; a certain proportion, however, remaining undecomposed. The action of the metallic zinc is limited to this undecomposed residue; nitrate of zinc being formed, while metallic silver is set free. The nitrate of zinc itself is partially decomposed by the solid chloride contained in the juices of the part; zinc chloride and sodic nitrate being formed by double decomposition. The diseased surface is thus coated with a film consisting of (1) unaltered albuminate and chloride of silver, which may subsequently be decomposed by the action of light; (2) metallic silver; (3) nitrate of zinc; (4) chloride of zinc; (5) sodic nitrate and chloride. It is to the caustic properties of the nitrate and chloride of zinc that the efficacy of the method must be ascribed. The author goes on to suggest that nitrate of zinc in sticks, either pure or mitigated, may advantageously be substituted for nitrate of silver; for it is at once cheaper and more active as a caustic, while it does not soil the hands and linen.

E. BUCHANAN BAXTER, M.D.

CRÉQUY ON THE TREATMENT OF FISSURE OF THE ANUS BY CHLORAL.—In a letter to the editor of the *Bulletin Général de Thérapeutique* (September 30, 1875) Dr. Créquy calls attention to the advantages of this agent. He mentions two cases, one aged thirty-eight years, the other forty, where the fissure was well marked and the usual distressing symptoms present. Charpie soaked in a solution of chloral—one in fifty—was inserted just within the anus daily, attention being paid to the regular daily evacuation of the bowels. A complete cure resulted in each

case at the end of a fortnight, the pain on defecation disappearing after the first few applications.

ARTHUR W. EDIS, M.D.

EVERS ON INDIAN MEDICINAL PLANTS (*continued from page 495*).—Surgeon B. Evers continues, in the *Indian Medical Gazette* for October 1, his notes on Indian medicinal plants as follows.

Soymida febrifuga (N. O. Meliaceæ).—The plant is commonly known as 'Bastard Cedar' and 'Indian Red-wood' in English, and as 'Rohun' in the vernacular. It is common in Central India. The wood is of a red colour, strong, heavy, and durable, and well adapted for building purposes and for making articles of furniture; it is not readily attacked by white ants. The bark, according to Ainslie, is 'of a dingy red colour, and has a pleasant bitter taste, with a slight degree of austerity.' (A decoction of the bark dyes brown of various shades.) Both the decoction and the infusion of the bark are used in medicine; but the tincture, according to the authority named, is said to be the most valuable. The Baidis employ the bark in the treatment of malarial fevers, thus, six mashas (equivalent to a drachm and a half) of the bark are bruised and administered in combination with sugar or syrup, two or three times a day. It is considered by some as a good substitute for cinchona bark. Sir W. O'Shaughnessy, however, is of opinion that it is of little use 'in the treatment of obstinate or dangerous cases,' but that 'like all other astringent tonics,' it will often succeed in mild cases of ague. He recommends it to be given in the form of extract. Attempts have been made to obtain an alkaloid principle from the bark, but without success. The spicular crystals obtained when the bark was subjected to processes similar to those for obtaining sulphate of quinia, were found to be simply crystals of sulphate of lime. It is sometimes adulterated with *nux vomica* bark, but from this it is distinguished by the application of nitric acid; the acid when applied to the inner surface of *soymida* bark does not 'cause a bright red stain.' Waring recommends it as a good substitute for oak-bark when astringent gargles, injections, etc., are required. I have employed the bark in the treatment of ague, but cannot report favourably of it. Its action appears to me to be more that of a bitter tonic than a febrifuge. In overdose it is said to cause derangement of the nervous system, 'occasioning vertigo and stupor.' The bitter principle of the bark, according to Broughton, consists of an almost colourless resinous matter sparingly soluble in water, 'but more so in alcohol, ether or benzol.' It does not combine with acids or bases; it contains an abundance of tannic acid.

Anthocephalus cadamba (N. O. Rubiaceæ: vernacular, Kaddam).—The plant is common in Bengal and in the North-West Provinces, seldom seen in the Central Provinces. It is said to be indigenous to Assam. 'The flowers are offered in Hindu shrines; the fruit is eaten.' I have employed a decoction of the bark (prepared in the same way as decoction of cinchona) in the treatment of ague, but cannot certify to its efficacy as a febrifuge. In several trials I gave it, it appeared to me to act simply as a tonic.

Euphorbia antiquorum (N. O. Euphorbiaceæ).—According to Ainslie, 'the milky juice got by wounding the branches is extremely corrosive, but when boiled with a small quantity of gingilie oil (tin oil) the native practitioners use it as an external applica-

tion in rheumatic affections ; ' it is said also to deaden the pain of toothache. When administered internally it acts as a cathartic, and is considered to be specially useful ' in those cases of obstinate constipation which are often troublesome when there is an enlargement and induration of the spleen or liver.' The fresh juice is highly acrid. The Baidis and Hakeems seldom use it fresh. For ordinary blistering purposes it is combined with croton-oil; thus the juice is mixed with bruised croton-seeds, saffron, and butter; this mass is enveloped in three or more folds of calico, and fastened to the end of a long iron hook; the mass is then ignited and held over some vessel, when a dark oily liquid is obtained; this liquid is said to be powerfully caustic. As a purgative, the juice is administered thus. Two or three drops of the fresh juice are mixed with about half a drachm of roasted chenna (Bengal gram) powder, and a little ghee and sugar; this dose is considered sufficient to produce eight or ten copious evacuations. The inspissated juice was formerly held in great repute as an antisyphilitic, and indeed Dr. J. Shortt reports that he has found it an excellent alternative in these cases, in doses of five grains night and morning. For a long time it was supposed that this plant was the source of the euphorbium of the shops, but this has been disproved by Hamilton (*Linn. Trans.* vol. xiv.) and Royle (*Illust.* vol. i. p. 328). Fluckiger and Hanbury refer euphorbium to the *Euphorbia resinifera*. A plaster composed of the bruised roots and assafœtida is applied to the stomachs of children suffering from worms. The root-bark is said to be purgative. The resin in combination with cantharides forms gout-plaster. The *Euphorbium tirucalli* and *E. nivalis* also yield an acrid milky juice. All these plants are of a highly poisonous character, and great care therefore is necessary in employing them medicinally.

Zizyphus jujuba (N. O. Rhamnæ: vernacular, *Bair*).—A very common plant in the forests of Central and South India. The bark is used as a dye, and also for tanning; the root is considered a febrifuge by the natives, and oil is obtained from the kernels. O'Shaughnessy states that 'the bark is used in the Moluccas as a remedy for diarrhœa; the root with some warm seeds in infusion, in fever. The lozenges, and the thickened mucilage called *jujubes*, by the confectioners, are prepared from this, and the *Z. vulgaris*.' Pieces of the roots, threaded into a necklace, are worn by the natives during attacks of ague. I have tried the root as a febrifuge, but find it slow in its action. In seventeen cases treated with a decoction of the root, the drug did not check the paroxysms until about the seventh or eighth day; I believe it acts more as a tonic than an antiperiodic.

SMITH ON TINCTURE OF ARNICA.—Dr. Walter G. Smith points out (*Dublin Medical Journal*, September, 1875) that Dr. James C. White is convinced, from his own experience, that not only is arnica valueless as an actual remedy, but that it is often positively noxious. He relates (*Boston Medical and Surgical Journal*, January 21, 1875) three cases in which the application of an arnica lotion to excoriations occasioned severe outbreaks of acute inflammation, accompanied by development of papules, vesicles, excoriations, crusts, and scales in regular sequence. The local symptoms were intense itching and some degree of burning. The mischief-making powers of arnica are much more frequent

than is commonly supposed; and if its deleterious and toxic effects are seldom recognised, it is because all the disturbances really due to this so-called remedy are laid to the account of the injury. Dr. White coincides with Hebra and Tilbury Fox in ascribing the feeble therapeutic properties of tincture of arnica solely to the presence of the alcohol (see Garrod's *Materia Medica*, 3rd ed., p. 267). The dangerous qualities of arnica have also been appreciated in France (*Rev. de Thér. Méd.-Chir.*, no. 9, 1875).

The following remarks, taken from Dr. Charles Phillips' *Materia Medica and Therapeutics*, 1874, throw considerable light on the discrepant statements which have been made respecting the effects of arnica. The ingredient in arnica long supposed to be of most consequence was *arnicine*, an amorphous bitter substance, almost insoluble in water, but freely soluble in alcohol and ether; or else the ethereal oil, which is also insoluble in water. For a variety of reasons, it is now probable that neither arnicine nor the oil, but *trimethylamine*, an organic alkali, is the really useful constituent of arnica. Trimethylamine, C_3H_9N , is a clear, colourless fluid, very volatile, and freely soluble in water, alcohol, and ether.

'The external effect of arnica involves important questions; for, while it is known that many persons have found it an excellent application for bruises and for wounds, other observers have complained that it produces either an actual erysipelas, or a peculiar violet-coloured eruption, attended by great heat and pain. I venture to affirm that these are physiological consequences of the alcoholic, and not of the aqueous solution, which latter contains neither arnicine nor the oil. I have never seen inflammatory consequences follow the application of the purely aqueous lotion to wounds or bruises.'—(P. 306.)

'For external bruises and cuts arnica is, undoubtedly, very useful; and, as already observed, the mischances that have attended its use have probably resulted from the fact that the tincture, containing arnicine and the volatile oil, has been employed. The infusion or decoction alone should be used, and it would be better to give up employing all liniments and lotions in which the tincture is present.'—(P. 309.)

NEILL ON THE TREATMENT OF GONORRHOEA.—In the Report of the Pennsylvania Hospital (*Philadelphia Medical Times*, June 19), Dr. Neill says the common treatment of gonorrhea used to be, and to a certain extent still is, the administration of stimulating resinous diuretics, principally cubebs and copaiba. The abuse of these medicines is worse than the disease itself, and they have undoubtedly been the cause of much of the chronic urethritis and cystitis which now exist. They have also been productive of much dyspeptic trouble, especially since the introduction of capsules, admitting of large doses. It may therefore be laid down as a rule in the treatment of gonorrhœa, never to begin with cubebs or copaiba. In such a case as this, and indeed in nearly all cases, in the early and inflammatory stage Dr. Neill advises the following prescription:—

R. Potassii bitart., ʒiv ;
Potass. nitrat. (pulv.), ʒiij ;
Potass. et antimon. tart., gr. j.

This should be ground in a mortar and thoroughly

incorporated, and then divided into twelve powders, one of which is to be taken three times daily.

The result will be at once an increased action of the kidneys and the whole genito-urinary tract, which will diminish the vascularity and hyperæmia of the urethral mucous membrane. The discharge will, perhaps, at first be somewhat increased, and it is as well to mention the possibility of this to the patient, but it will then in its turn diminish, and in ten days will almost invariably be much less. In conjunction with this treatment urethral injections, may be ordered, consisting at first merely of cold water, and afterwards of some astringent, such as the sulphate or chloride of zinc or nitrate of silver, but never stronger than half a grain or a grain to the ounce. At the same time, the amount of solid food should be restricted, large quantities of water and alkaline drinks should be taken, and the use of spirituous liquors, violent exercise, and sexual excitement should be strictly avoided. The prejudice which exists against coffee, salt meat, etc., Dr. Neill believes to have no philosophical basis.

TREATMENT OF CHOREA BY ETHER-SPRAY AND ICE-WATER LOTIONS ALONG THE VERTEBRAL COLUMN.—Dr. Fabry has brought together in his *Thèse de Paris*, April 16, 1875, no. 107, the cases he saw whilst in Dr. Perroud's wards at Lyons of the treatment of chorea by ether-spray. This therapeutic means, employed for the first time in 1866 by M. Lubetski, a physician at Warsaw, has yielded very satisfactory results in M. Perroud's hands. The ether-spray is applied along the vertebral column by means of any spray-producers, especially those of Richardson and Marmier. Each application lasts from four to eight minutes; at the commencement of the treatment three applications *per diem* are made, and the number is then reduced to two. Ice produces the same effect as ether-spray; the effects being produced by moving a piece of ice along the vertebral column for five minutes. These two methods act on the excito-motor point of the nervous centres by their refrigerant revulsive action.

RECENT PAPERS.

- The Toxic Properties of *Lolium Temulentum* and *Lolium Viride*. By George Fleming. (*Edinburgh Medical Journal*, October, 1875.)
 New Experiments on the Physiological, Toxic, and Therapeutic Action of Chlorate of Potash. By Dr. Isambert. (*Gazette Médicale de Paris*, October 9.)
 A Consideration of the respective Merits of Chloroform and Ether as Anæsthetics. By Dr. Davis Thomas. (*Australian Medical Journal*, May, 1875.)
 On Sulphate of Quinine and Digitalis in Pneumonia. By Dr. Limousin. (*L'Union Médicale*, October 12.)
 On the Isolating System of Medicine: Its Practical Methods, Therapeutic Value, and Physiological Reason. By Dr. Latour. (*L'Union Médicale*, October 7.)
 Can Arsenic cure Pemphigus? By Jonathan Hutchinson. (*Medical Times and Gazette*, October 23.)
 On the Treatment of Ringworm and other Forms of Skin-Diseases by Boracic Acid. By Surgeon-Major Watson. (*Indian Medical Gazette*, October 1.)

OBSTETRICS AND GYNÆCOLOGY.

PETER ON PUERPERAL MANIA.—In a lecture on this subject (*La France Médicale*, July 28, 1875), Dr. Peter stated that he considers puerperal mania to be due to a termination of the blood to the head; the blood, instead of going to the breasts to form milk,

goes to the head to produce a pathological cerebral hyperæmia. Why all suckling women do not have mania is purely a personal matter, depending upon the quality and condition of the brain, whether bad or labouring under mental distress. All functional work demands an afflux of blood, and this functional hyperæmia of an organ may at any time become a pathological hyperæmia. An immoderately active brain is immoderately hyperæmic, which predisposes to a pathological condition. Puerperal mania is, as a rule, in the hypochondriacal form, from the mental occupations of a pregnant woman being of a sad and melancholy turn.

He relates a case lately occurring in his clinic, as proof of this theory. The woman had had five children previously, without a bad symptom. The present pregnancy was an adulterous one. She was of an excitable temperament, and keenly felt her position. During the attack the temperature was normal; but the pulse was very irregular—every two, three, or four beats it intermitted unequally.

The irregularity he attributes to defective innervation of the heart. The nerves which supply this organ come from two sources—the pneumogastric and the cervical portion of the large sympathetic. The cardiac nerves spring from the bulb (medulla oblongata) and the cervical portion of the spinal cord; the cardiac disorder and the cerebral had, therefore, one and the same origin, viz., a cerebral and bulbous hyperæmia.

The treatment is to reduce the cerebral and spinal congestion by the application of leeches or cupping to the nape of the neck. The latter method was adopted in the case, with the effect at once of relieving the headache and the irregularity of the pulse. At the same time, eau de Sedlitz was given to purge the bowels. On the third day a dose of chloral (thirty grains) was given at bed-time, as the sleeplessness had not disappeared; its effect was immediate.

All attacks of puerperal mania come on at night; from the mind not being diverted from itself by the ordinary passing excitements of daily life, it dwells too much on its condition, which increases and intensifies the functional hyperæmia.

SCHRANK ON PERI-UTERINE HÆMATOCELE AFTER ABORTION.—A case of peri-uterine hæmatocele, a sequence of abortion, is related by Dr. S. Schrank, in the *Med.-Chirurg. Centralblatt* for July 23. The patient was not aware she was pregnant, although about three months had elapsed since she menstruated last. Three days previously to her observing a discharge of blood from the vagina, she had slipped down a couple of stairs. Homely measures failing to arrest the flow, she applied for medical relief. Vaginal examination showed the uterine cavity to be empty, the os readily admitting one finger. Vaginal injections of iced water were ordered, and 50 centigrammes ($7\frac{1}{2}$ grains) of ergot to be taken every hour, and cold compresses to be applied over the abdomen. The patient was somewhat overcome from her loss. During the night there were a few occasional gushes of blood, mixed with portions of the decidua. When seen next day she was extremely blanched, and any movement caused faintings. A digital examination discovered a few coagula in the vagina, and the uterus was full of them. External palpation revealed a swelling of considerable size, distended, and neither painful nor tender on pressure. No connection could be made out by examination

through the abdomen and vagina between it and the uterus. The suddenness of the appearance of the tumour, the collapsed condition of the patient, although there had been external hæmorrhage, and the non-connection of the tumour with the uterus, indicated the existence of a hæmatocele. The blood evidently, instead of escaping *per vaginam*, had, from some pathological or abnormal condition of the Fallopian tubes, passed backwards into the abdominal cavity, giving rise to a hæmatocele. It is a rare accident for any fluid to pass from the uterine cavity through the Fallopian tubes into the peritoneal cavity without some impediment to its exit; still there are several recorded cases of uterine injections doing so. Considering how frequently intra-uterine injections have been used, and how rare has been the accident, the author inclines to the belief that it only occurs under some pathological or abnormal condition of the Fallopian tubes and ovaries.

W. C. GRIGG, M.D.

RUGE ON INJURIES TO THE FŒTUS IN CASES OF BREECH-PRESENTATION.—Dr. Carl Ruge (in *Bulletin Général de Théraputique*, August 15, 1875), tabulates a series of cases of this nature.

In the first table are grouped forty-four instances of lesions produced in extraction after version. These include fractures of the humerus, femur, clavicle, parietal, occipital, and lower maxilla; rupture of the cervical and dorsal vertebræ; of various muscles—as the sterno-mastoid, pectoral, etc., and of the longitudinal sinus; effusion of blood into the abdomen, muscles of the chest, etc.; separation of epiphyses, as the clavicle, humerus, maxilla, tibia, etc.

In the second table of lesions produced in breech-presentations, twenty-nine instances are given, where fracture of the frontal bone, femur, clavicle, and other accidents similar to those observed in the former group, occurred.

The author insists upon the advantages of 'expression' of the aftercoming head over traction upon the trunk, as being far less dangerous, care being taken that the head is placed in the position best calculated for its delivery through the pelvis. The combination of the three methods, position, expression, and traction, should always be resorted to.

ARTHUR W. EDIS, M.D.

RECENT PAPERS.

On the Influence of Diseases of the Heart on Menstruation and Pregnancy. By Dr. Duroziez. (*Archives de Tocologie*, October, 1875.)

On the Uterine Souffle and the Fœtal Heart. By Dr. James Cumming. (*Edinburgh Medical Journal*, October, 1875.)

Three Cases of Puerperal Eclampsia followed by Death. By Dr. Eugène Marchal. (*Revue Médicale de l'Est*, October, 1875.)

The Constitutional Origin of Uterine Disease. By Dr. C. D. Palmer. (*The Clinic*, September 25.)

On Chloral in Puerperal Eclampsia. By Dr. Dumas. (*Bulletin Général de Théraputique*, October 15.)

The Analogy between Early Abortion and Dysmenorrhœa. By Dr. Haggard. (*Virginia Medical Monthly*, October, 1875.)

A Case of Adenia or Hodgkin's Disease. By Dr. W. H. Taylor. (*Ibid.*)

On Digital Exploration of the Bladder and Catheterism of the Ureter in the Female. By M. Simon. (*Gazette Hebdomadaire*, October 29.)

On the Avoidance of the Frequent Use of the Speculum by the Employment of Nitric Acid. By Dr. Braithwaite. (*Obstetrical Journal*, November.)

REPORTS OF FOREIGN SOCIETIES.

ACADEMY OF MEDICINE IN PARIS.

September 28. *The Will considered as a Moral Power and Therapeutic Agent.*—M. Jolly read a paper on this subject. After a rapid study of the faculty called will, the author, attacking the medical side of the question, asked if the will is not capable of imposing its law on physical deviations, and causing certain modifications in pathological conditions, which are more or less rebellious to therapeutic agents possessed by us. He cited cases where paralytic patients, treated ineffectually for years, suddenly recovered the use of their limbs under the stimulating influence of danger. Amongst the diseases in which the will can exercise a potent influence, M. Jolly cited tic, stammering, chorea, cough, whooping-cough, nystagmus, and hysteria. The empire of the will over sensibility may go to the extent of annihilating the latter; but it is especially in a time of epidemics that the will shows its power, and that the men most distinguished by courage and energy are seen to be spared by the disease.

The Classification of Mental Disorders, with reference to an alleged Religious Monomania.—M. Delasiauve passed in review the classifications given by Pinel, Esquirol, Morel, Renaudin, Falret, and Baillarger. They are all defective, since they are founded only on a single characteristic, the consideration of the cause in some, and in others the characteristic of excitation or lowering of the symptoms. These classifications are insufficient to explain certain forms of insanity arising from morbid impressions, vicious ideas, or modified sentiments. The variety, which he had named first pseudo-monomania, would have a special evolution and special characteristics. M. Delasiauve proposed to call it diffused partial delirium. The remarkable point in it is that the patients, dominated by an automatic impulsion and imaginary conceptions may, beyond the aberrative sphere, reason and act in a sane manner. In this class must be ranged those undecided forms called mania without delirium, reasoning mania or madness, reasoning monomania, etc. On this subject the author quoted three instances in which he endeavoured to show the difference between these cases and monomania; a difference characterised, according to him, 'by the logical faculty exercising itself simultaneously to the advantage of both normal and maniacal manifestations.'

October 5. *False Abscesses of the Bones, and the Neuralgic Form of Osteitis which accompanies them.*—M. Gosselin read a paper on this subject. Since the thesis written by M. Cruveilhier, it is generally agreed to assign the interepiphysary cartilage and pain at the seat of these abscesses as the clinical characteristic. This sign is correct; but the cartilage is not always the seat of pain. According to M. Gosselin it exists, sometimes higher, sometimes lower, in the joints of juvenile osteitis, termed epiphysary. They are almost always the signal of an anterior affection. The pain is far from being characteristic. M. Gosselin quoted four cases in which, as there was a painful affection of the extremities of the long bones, trephining was performed without any pus being discovered. Therefore, added M. Gosselin, pain does not always denote the presence

of an abscess; these are false abscesses, constituted by a cavity not containing liquid pus, and situated in the centre of an old ossifying osteitis. These false abscesses are neither the seat nor the cause of pain, which is due to neuritis by propagation. Something in this case goes on analogous to what is met with in neuralgia consecutive on dental caries. We must not, however, give up trephining, which is indicated, for it is not known if there is or is not pus. There is no danger in performing it; it has an almost certain effect on neuritis of bone.

Vertigo.—M. Piorry read the first part of a memoir on vertigo, followed by some considerations on migraine and other *neuropallies* (nervous vibrations). Vertigo has always been referred to cerebral disturbances, notably to congestion. This explanation is incorrect; the origin lies in the eyes (*visalgia*), whence spring morbid nervous vibrations (*neuropallies*) which affect either the nerves of the forehead or those of the stomach ("vertigo a stomacho laeso") or those of the limbs, when they give rise to the convulsions of hysteria, epilepsy, hydrophobia, etc. These initial ocular disturbances constitute true visual hallucinations. It seems as if objects were turning round and round, and that they are going to be touched, but the intelligence is not affected. The same facts are observed in migraine; the patient first feels a sensation as if all objects placed near him were out of their places; then the eyeball has involuntary vibratory movements, and at the end the eye is congested. Pain takes its rise from the eye to affect the occipital and frontal nerves and the stomach, where it brings on nausea. The nervous disturbances always correspond with the eye affected, but they may leave that eye and affect the other. Migraine is, therefore, only a vertiginous irisaigia. Something of an analogous character goes on in irisaigia. With regard to treatment M. Piorry recommended, as a preservative against it, not to fix the eyes too long and too fixedly on the same object, especially if it be luminous. As soon as the vertigo is felt the eyes should be closed, and the patient should lie down motionless in darkness. Cold water, or an opiated liniment, should be applied to the eyelid as an adjuvant. We may also work through the stomach, and administer bicarbonate of soda in large doses. If the spleen is enlarged, quinine or extract of barberry should be given. M. Leroy de Méricourt maintained that vertigo always originates in disturbances of the sight; it is thus that sea-sickness is observed in blind persons and persons asleep, in which visual disturbances cannot be concerned.

ACADEMY OF SCIENCES IN PARIS.

August 9. *Monobromated Camphor*.—M. Clin read a note on the preparation of crystallised monobromated camphor. M. Bourneville also read a paper on some points of the therapeutic and physiological properties of monobromide of camphor, of which an abstract will be found in the LONDON MEDICAL RECORD for October, 1875, p. 593.

August 30. *Action of Pepo Vulgaris as a Tannicide*.—M. Herkel read a note on the active part of the seeds of the pepo vulgaris, employed as a tannicide. As it is not rightly known what is the part of the seeds which acts upon the worms, the writer examined the different parts of which it is composed. The seeds, deprived of their perisperm, do not act, whilst the corresponding portion of the endopleura produced an excellent result, even in small

doses. This endopleura contains a resinous substance which is dissolved if castor-oil be previously given, and it is probably to this latter substance that the pumpkin seeds owe their tænicidal property.

August 30. *Malignant Pustule*.—M. Declat presented a note concerning eight new cases of cure of malignant pustule by carbolic acid and carbolate of ammonia.

Bankoul Oil.—M. Heckel communicated his researches on Bankoul oil. This oil is less purgative than castor-oil, and rather more so than oil of sweet almonds; at least 80 grammes of it are requisite to obtain two or three evacuations, and even then the action of the bowels is not regular.

Coagulation of the Blood.—MM. Mathieu and Urbain presented the results of their experiments on the part played by carbonic acid in the spontaneous coagulation of the blood. The slight coagulability of the blood saturated with chloride of sodium or exposed to low temperatures would, in their opinion, be only caused by the weaker solubility of the carbonic acid under these conditions. Similar experiments made with lime water give the same results. The writers, therefore, maintained their former conclusions; carbonic acid is the cause of the spontaneous coagulation of the blood; and during life the fibrine dissolved in the plasma is not coagulated, because the carbonic acid gas, like the oxygen, is combined with red corpuscles.

Histology of the Striated Muscles.—M. Rongon read a paper on the ultimate elements which can be arrived at by the histological analysis of the striated muscles. Numerous experiments undertaken to decompose the muscular fibrillæ into their elements demonstrated that they are very thin discs, animated by Brunonian movements, and which contract probably in the same manner as the sarcodes.

August 20. *Treatment of Uterine Deviations*.—M. Abeille read some cases of cure of uterine deviations by subvaginal uterine myotomy by the actual cautery. He credited himself with having obtained sixty-five successful cases out of seventy-one anteversions or retroversions, and a manifest improvement in the six other cases.

Pathology of Glanders.—M. Rénoul presented a note on the anatomical lesions of acute or chronic equine glanders. If glanders by its lesions shows any analogies with tuberculosis, these analogies are at least somewhat remote. Purulent infection is more like the disease in question. From the anatomical point of view pyæmia, glanders, tuberculosis, and syphilis, form a natural group; all these infectious diseases have as their anatomical characteristic the production of inflammations arranged in nodules and showing a marked tendency to caseification; they all spring originally from the impregnation of the animal economy by a more or less recognisable virulent agent. This community of origin in connection with the singular similarity of the anatomical lesions brought on by them is not the least interesting point of their history.

MEDICAL SOCIETY OF BERLIN.

July 14. *The Action of Croton-Chloral*.—Dr. O. Liebreich made a communication on this subject. More extended researches and observations had, on the whole, confirmed the opinions which he had formerly expressed, especially as regarded the difference between the action of croton-chloral and that of chloral-hydrate. The latter drug, as may be

concluded from experiments on animals and observations on man, produces first anæsthesia, then paralysis of the heart's action, and death, which cannot be prevented by artificial respiration. Croton-chloral acts quite differently. If some be injected under the skin or into the stomach of a rabbit, anæsthesia of the head is very rapidly observed, the eye becomes quite insensible, while the lower extremities show reflex action; then there follows a sleep-like state, without reflex action, and not until nearly the end does slowness of the breathing and pulse set in. After death, the right ventricle is found empty, the left full. That there is no paralysis of the heart here, is shown by the fact that the animals can be kept alive for a long time by artificial respiration, especially in summer; in winter, the lowering of temperature is injurious. The course of the phenomena is also quite another than with chloral-hydrate. Observations on man agree with the experiments on animals. Dr. Liebreich gave croton-chloral to a very restless insane patient in Dr. Levinstein's asylum. In ten minutes he sat quietly on a chair; his eyes did not react; the muscles of the extremities retained their tenacity, the pulse and respiration were unchanged, and in an hour the action had passed off. It had acted in a similar way in several other observations on man. Dr. Liebreich had expressed the theoretical supposition that the action of croton-chloral depends on the formation of dichlorallylen. If croton-chloral be treated with alkalies, a substance containing chlorine, insoluble in water, is produced, which, if inhaled, produces the same symptoms as croton-chloral. The therapeutic use of croton-chloral had corresponded in many cases to the results obtained by experiment. Dr. Liebreich had used it with good effect in severe neuralgic affections of the head. He related especially the case of a tobaccoconist, in whom the supraorbital nerve had been divided, but without effect for neuralgia. The patient was so tender, that, being troubled with a constant discharge from the nose, he was afraid to use his handkerchief. After one dose of croton-chloral, the tenderness ceased. A similar effect occurred in other cases. The remedy, however, is only palliative; for the absence of pain lasts only a short time. The medicine is well borne by the stomach. It has been used successfully in England. On the other hand, Dr. Herr von Mering has stated that he only found a state resembling intoxication to be produced by the action of croton-chloral; but he gave a mixture which contained three times as much of rectified spirit as of croton-chloral. An antagonistic action may be produced by alcohol, especially in cases attended with exaltation and violent irritation. Herr von Mering had also made a theoretically interesting observation. He had found that, after the administration of chloral-hydrate, as well as of croton-chloral, a substance containing chlorine appeared in the urine along with another unknown substance, which he did not find after the use of chloroform or of dichlorallylen, and he therefore concluded that Dr. Liebreich's theory was incorrect. But Dr. Liebreich did not think that his theory should be set aside on this ground. When mixed with blood, chloral yields chloroform; and when chloral passes through the blood, there must always be at least some that is not changed into chloroform. In concluding, Dr. Liebreich alluded to the experiments of Hermann and a lady-pupil of his, which were supposed to contradict his views regarding the action of trichloroacetic acid. When trichloroacetic acid is treated with

soda, chloride of sodium and formic acid are produced. Pure trichloroacetic acid acts as a calmative, not as a hypnotic, through the constant slow formation of small quantities of chloroform.

July 28. *Tumour of the Brain*.—Herr Hirschberg related the case of a man, aged sixty, in whom there was total defect of the right half of the field of vision in each eye, although the unity of vision was normal and the retina and papilla were intact. Aphasia, right hemiplegia, and death soon followed. The necropsy discovered a vascular gliosarcoma of the size of an apple in the left frontal lobe, and thinning of the left optic tract. The author showed the diagrams of the field of vision, and the preparation, which tended to support the view of a semi-decussation of the fibres of the optic nerve in the human chiasma. He also showed the brain of a rabbit one year old, in which he had extirpated the left eyeball a few days after birth, and in which the atrophy of the left optic nerve and tract showed that in animals with a limited field of vision there is a complete crossing of the fibres of the optic nerve in the commissure. Herr Remak asked what was the state of the function of the olfactory nerve. It had been stated by American authors to be interrupted in cases of right-sided hemiopia, aphasia, and right hemiplegia. Herr Hirschberg replied that no special examination of the sense of smell had been made. In reply to a question from Herr Landsberg, he said that not much fluid was found in the cerebral ventricles.

Extirpation of the Larynx.—Professor von Langenbeck described a case, the history of which was given at page 509 of the LONDON MEDICAL RECORD for September.

REVIEWS.

Diseases of the Female Sexual Organs. By Professor CARL SCHRÖDER. Being vol. x. of the *Cyclopædia of the Practice of Medicine*. English Edition. Edited by ALBERT H. BUCK, M.D. Pp. 575: illustrations, 147. Sampson Low and Co. 1875.

Although much has been done of late to advance the art of gynecology, too little attention has been devoted to the more scientific or pathological, as well as physiological, aspects of the question. This has doubtless led to much confusion, and brought discredit upon the department. Men have ranged themselves in opposite camps, promulgating certain theories and expressing their belief in various dogmata, apparently seeking for triumph more than for truth. Whilst one authority considers inflammation as the starting-point of nearly all uterine disorders, another declares as boldly that patients suffering from uterine symptoms are almost universally found to be affected with flexion, or alteration in shape, of the uterus, which flexion shows a marked tendency to perpetuate itself, and at the same time keep up a condition of chronic inflammation. Other theories of morbid ovulation, uterine irritation, and subinvolution, are entertained by others equally worthy of consideration. Between these various theories the difficulty is to decide; and though much has been written to prove the one and disprove the other, we are still left in doubt, and it is only by observing carefully, and dealing with facts in an impartial and liberal spirit that we can ever hope to settle the question and advance the scientific basis upon which all practice must ultimately rest.

To the Germans especially, during the present century, must we give credit for the patient laborious investigations that have been made in uterine pathology. The names of Klob, Kiwisch, and Waldeyer will be familiar to all. Schröder, the author of the present volume, has also done good work; but it is a question whether, in an undertaking like the present, intended to be international, it would not have been better to associate some other names with that of the author, and not give him the invidious distinction of being the only and sole contributor, who is responsible for an entire subject. Thirteen of the other volumes have many to divide the honours of authorship; one only, on diseases of the skin, is undertaken by Professors Rindfleisch and Von Ziemssen alone.

We are led to make these remarks from the unequal manner in which the subject has been handled. The sections treating of malformations and other pathological data are far more complete and valuable than the clinical or practical portion of the work, which is in many cases very meagre and very unsatisfactory. The treatment of acute vaginitis, pp. 493-4, occupying seven lines, is an instance. In fact, as a guide to practice, the work is deficient in many important details. The author depends mainly upon stating his own impressions, and does not seem to regard the opinions of others as worthy of being more than briefly alluded to, not even discussed, and seems to be more familiar with the results of disease as evidenced *post mortem*, than he is with the clinical details of treatment.

In his effort to make the work as complete as possible, he has been forced to draw upon his imagination for what in one instance at least will be regarded by many as a purely imaginary condition—hypertrophy of the uterus, *i.e.*, an equable increase in size and number of all its constituent parts—not due to subinvolution or inflammatory action. He admits that it is a very rare pathological condition, but still devotes over three pages to its consideration. 'The description of the symptoms is necessarily drawn rather from analogical deductions than from personal observation,' p. 74.

The author, in speaking of the various modes of examining patients, advises that 'the lateral position for the purpose of digital examination should be abandoned; the dorsal position is the only one in which conjoined manipulation is admissible.' In this we agree to only a limited extent; the lateral position is unquestionably far less objectionable to the patient, and is, in many respects, the most convenient for the employment of the uterine sound as also of the speculum, whether it be Sims's or Ferguson's. The author admits, in speaking of the dorsal position, that an examination with the speculum is exceedingly inconvenient; and to obviate this difficulty, in place of turning the patient on her side, suggests that a special couch must be prepared; this we regard as perfectly unnecessary.

He very properly lays much stress upon the importance of conjoined manipulation; and for this to be carried out thoroughly, there is no doubt that the dorsal position is by far the best. But a bed or couch is all that is needed; an examination-chair is an unnecessary refinement.

In examining with the uterine sound, he begs us to remember that 'the fingers are holding an exploring instrument which is to seek an already existing canal, and not to bore a new one.' He advises using it only 'when some especial, not otherwise ob-

tainable, information' is expected to be derived from its employment; and points out the dangers attending its employment.

The chapter devoted to malformations of the uterus is elaborate, its value being increased by the diagrams. It is evidently a subject congenial to the author's taste, and contains much that will be interesting pathologically.

We are inclined to think that the subject of hypertrophy of the cervix uteri has been worked up to an almost unnecessary state of refinement; its supravaginal, median, and infravaginal enlargement being more evident in the numerous diagrams accompanying the description than ever exist in practice.

In speaking of acute endometritis, we are told that 'usually there is no need of any special treatment' (p. 128). Further on, in giving the treatment of the chronic form, he tells us that 'in the first stage of the disease—clearly the acute—mere scarification of the vaginal portion may avail to end the whole process.'

'Many gynecologists have maintained that displacements, forward and backward (of the uterus), occasion no symptoms at all, and that the manifestations of disease in such cases are always owing to complications, especially to inflammation of either the mucous membrane or the parenchyma of the uterus. Even if this view be correct, yet it does not follow that it is irrational to treat the abnormal positions as such; for it may most properly be maintained that the displacements easily lead to inflammation of the uterus, and that the natural way to avoid this result is to correct the deviations. It is then desirable, even from this stand-point, to treat the displacements when existing without symptoms.'—P. 171. Conflicting theories (and consequent modes of practice) are still entertained on this subject. The author's views are here given *verbatim*.

Nearly thirty pages are devoted to the description of fibroids of the uterus. The various methods of attempting to arrest their growth by the hypodermic injection of ergotin are very briefly discussed; the author apparently justifying his brevity by the statement that 'all the means recommended usually fail, and we have no internal treatment from which, in any individual case, we are justified in expecting good results, with the least degree of certainty.'

The removal of fibroids through the vagina occupies but two pages; and considering the marked success that this method has met with of late, we should have expected in a work of this kind a more extensive and minute description of the mode of operation, its risks and difficulties.

'Respecting cancer: in the first place we declare that we neither separate the malignant papillary tumours from carcroids, nor the latter from carcinomata.' Waldeyer's views are accepted as correct; the origin of all forms of cancer being referred to the true epithelia. They are thus sharply defined from the sarcomata, which are pure connective-tissue tumours. According to the preponderance of either the connective-tissue framework or the nests of cancerous epithelium, the harder forms—scirrhus, and the softer—medullary cancer, are distinguished. He advocates operative interference 'even where we cannot hope to remove all the diseased tissue,' and does not agree with Spiegelberg that the depressing influence of the operation is greater than the advantage gained by it. Still better results have been attained by the after treatment with bromine, for in this way the chances of radical removal are improved, and, in any event, the local healing takes

place with wonderful rapidity. Chloral, too, will often procure a quiet night's rest,' is all that is mentioned of this valuable local and internal remedy.

Sarcoma of the uterus he agrees with Waldeyer in regarding as a pure connective-tissue tumour. It occurs in two forms, sarcoma of the mucous membrane and of the parenchyma of the uterus, and is found at every period of life from puberty onward. Recovery may occur if an operation can be performed through healthy tissue. The course of the disease is much slower than in carcinoma.

In speaking of dysmenorrhœa, the author 'excludes ovarian; the pains in the ovaries having nothing about them characteristic of menstruation as such.' 'Ovulation has an etiological significance in connection with perimetritis, but not with dysmenorrhœa. Nor ought we to include under the head of dysmenorrhœa those pains accompanying the period, and which are commonly designated as congestive dysmenorrhœa; for in these cases the regular symptoms of uterine disease are only intensified by the menstrual congestion.'

The differential diagnosis of ovarian cysts or cystomata in their various stages is fully and clearly given. Allusion is made in the text to various important cases, both English and foreign, where the diagnosis was obscure, as throwing light upon similar cases. The whole subject is well worked up, and is most exhaustively treated. Ovariectomy in all its details, and in all its various methods of procedure in dealing with the pedicle is fairly discussed.

The index is one of the least satisfactory parts of the book, and is practically of little avail. The arrangement is complicated and unsatisfactory.

Although the work is one in many respects of much merit, it will not compare with our best English treatises on the same subjects as a guide to practice. The plan of the work is more adapted to supply the wants of the pathologist than the requirements of the practitioner.

The science of gynæcology has been too exclusively considered to the detriment of what is equally important, the art of gynæcology.

Syphilitic Lesions of the Osseous System in Infants and Young Children. By R. W. TAYLOR, M.D., Surgeon to the New York Dispensary, Department of Venereal and Skin Diseases, and Physician to Charity Hospital, New York. William Ward and Co., New York; Sampson Low and Co., London.

The whole subject of infantile syphilis has been apparently so thoroughly worked out in all its varied aspects, and such comprehensive monographs have been written upon the disease, that any further discoveries of importance would be deemed in the highest degree improbable. Yet the standard works give little information with regard to lesions of the osseous system in congenital syphilis, except that they are extremely rare. This statement has been generally acquiesced in, and small attention paid to the point. Ranvier was apparently the first to trace out the pathological processes of syphilitic disease of the bones in children; but the earliest systematic description founded on the actual observation of a considerable number of cases was supplied some years later by Dr. Wegner, of Berlin. In 1870, Dr. Wegner published an account of the microscopic appearances observed in lesions of the bones met with in twelve cases of infantile syphilis, in which he showed that the pathological processes

were distinct, and further declared that such lesions were not rare, but tolerably constant. These observations and statements were subsequently confirmed and extended by Professors Waldeyer and Kobner in Germany, and later still by Parrot, Violet, and Poncet, in France. By all these authors, however, the subject has been treated chiefly from a pathological point of view, Parrot alone dealing with the clinical aspect of such cases, and that in a very partial manner.

The literature of the subject has hitherto been wanting in this special element; and, indeed, there has been no work dealing with the whole question of the bone-lesions of infantile syphilis in a complete and comprehensive manner. Dr. Taylor has given a very able contribution towards meeting the deficiency; but the reliable materials available are yet too limited to permit any authoritative definition of the subject.

The foundation of the treatise consists of fourteen cases which have been under the author's personal observation, with the addition of a large number of others collected from various sources. The data thus brought together appear to include all the observations which have been recorded, and the collection is sufficiently comprehensive. The cases gathered abroad are, however, not equally satisfactory, some being assumed to be syphilitic on slender and imperfect evidence.

The fourteen examples observed by Dr. Taylor himself are, on the other hand, nearly all of an unexceptionable kind. In every instance one or both parents were positively ascertained to be syphilitic, and in all but two cases the children bore unmistakable marks of the disease, such as the specific eruption and catarrh. In all but four cases (in one of which the disease was acquired) the children were between two and three months old, *i.e.*, the age at which, as a rule, the external signs of congenital syphilis are first developed.

The treatise is arranged in a very systematic manner, and the subject discussed in minute detail. A separate section is devoted to the lesions of each bone or set of bones, to the various consequences which result, to the pathological anatomy, the diagnosis between the bone-affection of syphilis and that of rickets, to treatment, and numerous other points of interest which arise in a thorough examination of the question in all its bearings.

The most striking and frequently occurring changes are found in the long bones, at the junction of the epiphyses with the diaphyses. The bones most frequently affected are the radius and ulna, and of these the distal in preference to the upper ends. The swelling may not be visible to the eye, but if the tips of the fingers be passed along the shafts, there is encountered, just at or above the commencement of the epiphysis, a quite abrupt elevation, which is found to encircle the bone or bones. Usually this swelling can be felt on all the surfaces, except that which is in combination with its companion bone. The enlargement, or swelling, may be limited to the portion of bone which corresponds to the ossifying layer between the diaphysis and epiphysis, or may extend further and merge into an expanded epiphysis. If both radius and ulna be affected, there appears to be also an union of the two epiphyses, as if the two bones were soldered together, so that the usually well defined furrow between them cannot be distinguished. No impairment of pronation or supination of the limb has, however, so far been observed.

The swellings may be symmetrically developed on both bones of both arms, or both bones of one arm may be affected, or one bone of both arms, or one bone of one arm only involved. The upper epiphyses are less frequently affected than the lower, and swellings there may, or may not, co-exist with similar swellings of the distal ends. Corresponding lesions are met with, but less commonly, on the other long bones, on the clavicle, sternum, ribs, bones of the wrists and ankles, the phalanges, the bones of the skull and face. The period of development of the swellings on the various bones has been ascertained with tolerable accuracy to be from two to six weeks, and when multiple they usually appear synchronously and run the same course. In some cases which have not been submitted to treatment, a second crop of swellings has been observed. These appeared within a year of the first series, and usually at an interval of about three months. The course of these syphilitic enlargements varies according to the original severity of the affection and its modification by treatment. In favourable cases resolution takes place, in others degenerative changes set in. The former leaves behind no perceptible impairment of the structure of the bone or neighbouring parts. The latter may be limited simply to a destruction of the superficial portions of the swellings to a greater or less extent, or they may be so severe as to involve, in the case of the long bones, the whole diameter of the swelling in destruction or liquefaction; in which case the epiphyses become separated from the diaphyses.

In the superficial forms the swelling opens and discharges a thick brownish secretion, containing leucocytes, granular matter, and a few myeloid cells, but at first usually free from pus. Ulceration goes on until it occupies a space corresponding to the necrotic spot on the bony tumour, having no tendency to spread beyond these limits, attaining a size of half an inch to an inch and a half, and of a round or oval figure. The sore resembles very much an ulcerating gumma of the skin, but the fact that the base of the ulcer is bony tissue distinguishes it from a mere lesion of the derma.

The separation of the epiphysis from the diaphysis in the more extensive form of degeneration has been found *post mortem* in many reported cases, but has been recognised during life only in two cases reported by Dr. Taylor.

In the fatal cases recorded by others it was found that the bones and tissues about the joints had become disorganised, the epiphyses extended, and the limb left in a state of permanent deformity. But in Dr. Taylor's cases the detached segments reunited, the process being described as effected by the formation of a bony tube under the periosteum for some distance up the shaft. This, acting as a splint, supports the parts and keeps them in position, and as the softened morbid tissue beneath is absorbed or extruded, bony formations jut inwards between the two detached segments; then, as healthy nutrition is developed in them, the two become gradually welded together, so that eventually hardly anything abnormal can be detected in the parts.

The morbid changes observed microscopically in the long bones are, first an increase in the width of the ossifying layer of cartilage or 'couche chondroïde,' which is less even and regular than usual, and its cells more abundant. In the second stage the morbid changes—which Dr. Taylor gives in detail—may be summed up as increased proliferation of car-

tilage-cells, premature sclerosis of the intercellular substance, formation of bone in the form of processes beyond the normal layer, and delayed bone-formation elsewhere, *i.e.* irregular ossification, premature in one spot, retarded in another.

The third stage shows general enlargement of the epiphysis, with thickening of the periosteum and perichondrium. In the layer nearest the bone are seen nucleated cells, spindle-cells, and granular detritus, the layer consisting in fact largely of granulation-tissue. This tissue is found at the end of the shaft in great abundance, and follows the vessels into the medullary spaces. These appearances are very imperfectly shown in a wood-cut which accompanies the description, the value of which would be greatly enhanced by a better illustration.

In the flat bones the lesion appears to be a periostitis, closely analogous to that found in the acquired syphilis of adults.

Among the most important and interesting sections of Dr. Taylor's work are those which treat of the relation between rickets and congenital syphilis, and the diagnosis of the enlargement of the extremities of the long bones, met with in one disease, from the similar condition in the other. The author is of opinion that there is no specific relation between the two affections; but that where rickets appears as a sequel of syphilis, it is simply a result of the cachexia induced by that disease—not a direct product of the syphilitic poison. There can be no doubt that the rickety condition does frequently supervene in children suffering, or who have suffered, from congenital syphilis. But in such cases it does not come on during the active evolution of the syphilitic lesions in the integument, but later, and is like the similar condition which may follow chronic diarrhoea, or other drain on the system, the result merely of imperfect nutrition.

The diagnosis of the osseous swellings in syphilis from those of rickets may usually be arrived at from the general symptoms and history of the case. Those of syphilis, moreover, are developed almost invariably in the first few weeks of life, while rickets comparatively seldom appears until towards the close of the first year. In rickets, again, the bone affection is much more general, the skull and ribs rarely or never escape; while in syphilis the swellings affect a certain number of bones only, and the cranium and ribs are seldom implicated. All these points, and many others, such as the diagnosis from rheumatoid arthritis, scrofulous periostitis, etc., Dr. Taylor works out, with a minuteness which it is impossible to follow here.

The treatment he advocates, it need hardly be said, is mercurial, with local applications to the parts where surgical interference becomes necessary. Medication of the child through the mother is condemned as utterly ineffectual. Altogether, the treatise will well repay careful study. It contains honest and original work, and a very thorough exposition and examination of what has been previously written on the subject. W. B. CHEADLE, M.D.

On Stricture of the Male Urethra, its Radical Cure. By F. N. OTIS, M.D.

In this interesting paper, Dr. Otis informs us that he has examined more than 100 urethrae with regard to the size of the urethra in relation to the flaccid penis, and he has found a constant relation between the circumference of the flaccid organ and

the capacity of the urethral canal. When the circumference of the former was three inches the circumference of the latter was thirty of the French scale.

3½ penis	.	.	.	=	32 urethra.
3½ "	.	.	.	=	34 "
3½ "	.	.	.	=	36 "
4 "	.	.	.	=	38 "
4½ "	.	.	.	=	} 40, or more.
4½ "	.	.	.	=	

The measurements were made by the urethrometer, for in a considerable majority of urethræ examined the meatus was contracted, either congenital or from inflammatory changes. By means of the instrument and the metallic bulbous sound a thorough exploration of the urethra may be made, and in any given case the number, size, and locality of the strictures determined. He feels sure that a true stricture always and of necessity completely surrounds the urethra, and that it always forms a resilient band.

Dr. Otis believes in the true curability of stricture, and considers there has been a very curious and important oversight in the investigation of the subject. 'The mechanical relations of the stricture to the urethra have not been considered.' Strictures have been dilated or rapidly distended, or divulsed or divided, up to a purely imaginary standard (no. 9 of English scale, no. 21 French). In his opinion, complete freedom from stricture can only be demonstrated by the easy passage of a bulbous sound of a size fully equal to the normal calibre of the present-urethra.

To ensure reasonable expectation of cure, the stricture or strictures must be completely divided; and this cannot be with certainty accomplished without a knowledge of the normal urethral calibre. This must be first determined by the urethrometer or by measurement of the flaccid penis. Whether dilatation, divulsion, or division be practised, the operation must be carried far enough to completely rupture or divide every constricting fibre, or subsequent recontraction is certain. He says neither divulsion alone nor simple urethrotomy is capable of effecting this with any certainty. It requires a combination of these two methods to accomplish the desired result.

In ordinary stricture, he advises the use of his improved dilating urethrotome. After this has been withdrawn a full-sized bulb should be passed, to institute an examination for results. If any fibres of stricture be then detected, the operation must be repeated at the contracted point until perfect freedom to the passage of the bulb has been secured. In all his instruments the incisions are comparatively slight. The tension to which the strictures are subjected render them thin, and brings them into a condition to be completely severed by an incision of the least possible depth. If the superior wall of the urethra be always cut upon, and in the median line, hæmorrhage is usually slight and ceases almost immediately.

In certain long-standing dense fibrous strictures, he has sometimes experienced great difficulty in effecting their thorough division, and occasionally had to employ several kinds of cutting and dilating instruments before the desired object was effected.

In all cases of stricture at or near the meatus, Dr. Otis divides them on the inferior wall of the canal and very thoroughly, with a straight bulb-pointed bistoury. The utmost freedom to the passage of the bulbous sound must be insisted on. The after-treatment of this class of strictures requires much more care to prevent recontraction, than of those

in the deeper parts of the urethra. The supervision of the slightest inflammation must be prevented, otherwise a recontraction is likely to ensue. In none of the reported cases has any dilatation been attempted after the healing of the wound made during the operation. The use of sounds subsequently to the operation is simply to separate the cut surfaces, and not for the purposes of dilatation.

Recontraction is due to incomplete division. Strictures of calibres less than No. 18 of French scale must be brought up to that capacity by some other method (gradual dilatation, divulsion, or Maisonneuve's urethrotome) before Dr. Otis's dilating urethrotome can be employed.

Of 100 cases, comprising 203 operations upon 258 strictures, hæmorrhage (we are to infer severe hæmorrhage) occurred in four; prostatic abscess in three; chordee in three; urethritis in two; a diphtheritic state of the wound in three; urethral fever in seven; retention in one case.

Of the 258 strictures, fifty-two were in the first quarter-inch of the urethra; sixty-three in the following inch; forty-eight from 1¼ to 2¼; forty-eight from 2¼ to 3¼; nineteen from 3¼ to 4¼; fourteen from 4¼ to 5¼; eight from 5¼ to 6¼; six from 6¼ to 7¼ inches.

Statistical tables are added to the pamphlet, and these tables show the age; number of strictures; locality of stricture; size of stricture; normal calibre of urethra; condition at date of operation; complications; number of operations; accidents after operation; results and re-examination.

Thirty-one cases were re-examined, and found free from recontraction, and therefore cured; fifty-two were perfectly well when last heard from; four were re-examined on account of return of symptoms after a length of time, and reconstrictions were discovered; five had return of symptoms after long relief, but were not re-examined; in three the result is unknown. Four remained under treatment; three enjoyed partial relief; in one the result was unknown.

Drawings of the ingenious instruments illustrate the pamphlet.

JOHN CROFT.

Typhoid Fever; its Causes and Prevention. Illustrated by the Recent Epidemics in Crosshill and Eaglesham. By EBEN. DUNCAN, M.D., Fellow of the Faculty of Physicians and Surgeons, Glasgow; Surgeon to the Deaf and Dumb Institution.

Dr. Duncan's pamphlet is avowedly written for the public, his object being to awaken public interest to the importance of sanitary work, as he believes that much of the apathy shown about this subject is due to the inability of all but a few to understand the papers written on it. He, therefore, commences his pamphlet with a short account of enteric fever, detailing the usual symptoms, with the order of their occurrence, and concluding this chapter with the statement that, after a careful consideration of the evidence adduced on both sides, he has come to the conclusion that typhoid fever has never a *de novo* origin.

Dr. Duncan is evidently a-head of his time here; few sanitarians will care to come to conclusions so readily on this point. Our knowledge of the ways in which enteric fever spreads must be much larger than it is at present, before we can speak positively on so vexed a question. All we can do now is carefully to investigate each outbreak and if, after a thorough inquiry, we are unable to find a first cause, simply to

leave the matter for the present as unsolved, in the hope that future cases may throw some light upon it.

The epidemic of which Dr. Duncan gives us the history commenced in January, although for some time before this sporadic cases had occurred. During this month the cases were not very numerous, and it was only at the end of February that the numbers began to assume serious proportions. By the end of March 280 persons had been attacked.

It is impossible, in so short a notice as this, to follow Dr. Duncan through all his arguments. It is sufficient to point out that he confined his investigations to—1. The nature of the soil on which Crosshill is built; 2. The atmospheric conditions at the time of the outbreak; 3. The sewerage and its connections; 4. The water-supply; 5. The milk-supply. 6. The influence of contagion by personal contact, and by infected clothing.

After referring to Professor Pettenkofer's views of the way in which enteric fever is produced in Munich, Dr. Duncan states that the fact of Crosshill being built on an impervious clay soil makes it impossible for this district to be affected in the manner in which Professor Pettenkofer believes Munich, with its pervious soil, to be affected.

Without here discussing the truth of Pettenkofer's theory as applied to Munich, it is quite clear that the soil conditions of Crosshill are totally different.

Passing by atmospheric conditions, which throw no light upon the cause of the outbreak, Dr. Duncan shows that particular parts of Crosshill, where the sewerage was specially defective, were particularly free from enteric fever, and he therefore concludes that there must be some other cause for its occurrence, although he admits that this may have been the origin of a few cases.

In considering contamination of the water-supply as a possible cause, he quotes the outbreak which occurred at Caius College, and erroneously states that Dr. Buchanan attributed it to the admission of sewer-air into the water-supply. If we remember correctly, Dr. Buchanan clearly showed in this case that water from a water-closet pipe containing organic matter was sucked up into the water-supply, and he absolutely found organic matter in the small pipe which, passing from the larger water-supply pipe, supplied the trap of the water-closet with water.

There is no doubt, as Dr. Duncan shows, that the water was not to blame at Crosshill, this district being supplied with the same water as others which remained quite free from fever. Dr. Duncan, however, gives us no explanation of his reasons for concluding that no local contamination took place.

Dr. Duncan's inquiry into the milk-supply soon led him to connect it with the outbreak of typhoid. Of sixty-eight cases, he found that sixty-four were in the habit of receiving it from some dairies at Eaglesham. Of the four exceptions one had only come into the neighbourhood within a fortnight, and therefore disease must have been contracted elsewhere.

In two no connection could be traced between the fever and Crosshill; and the remaining patient had been in the habit of taking tea in a house at Crosshill in which a case of typhoid was running its course.

An interesting account of the condition of the Eaglesham dairies follows, and the question how they became impregnated with enteric poison is discussed. The first case occurred in August, 1874, the patient being taken ill in Glasgow and brought to Eaglesham. After this several others became affected, one of them being the grandchild of a

dairyman. This man had a dungstead which drained into an open well, the water of which was used for washing purposes, and this was in communication with a second open well, the water of which was used for washing the milk-cans.

Dr. Duncan may be congratulated for having taken great pains in the investigation under notice, and for having arrived at a solution of the difficulties. His paper is an useful and interesting lesson.

ALEX. COLLIE, M.D.

On Addison's Disease, being the Croonian Lectures for 1875. By E. H. GREENHOW, M.D., F.R.S. Physician and Lecturer on Medicine at the Middlesex Hospital. London: Longmans and Co., 1875.

In these three lectures, delivered before the Royal College of Physicians of London, the author gives a very complete account of the symptoms and pathology of Addison's disease of the suprarenal capsules; and in two appendices are contained, first, the details of thirty-three typical cases of the affection, and secondly, references to 333 cases, either of true Addison's disease or of other affections of the suprarenal capsules, distributed in groups according to their nature.

The first lecture contains a very full and detailed description of the symptoms and morbid anatomy of the disease, which is shown to be due to one particular affection of the capsules, characterised by the infiltration of the organs by an interstitial fibro-nuclear growth of low type, portions of which, with the proper structure of the capsules, undergo caseous transformation; and together with this there is always implication in the morbid process of the neighbouring semilunar ganglia and solar plexus, with the nerves passing from them to the capsules.

The second lecture is mainly critical, and is devoted to the discrimination of true Addison's disease from various other affections attended by bronzing or other discoloration of the skin, which have been erroneously published as cases of Addison's disease; the author also shows that other affections of the capsules, as cancer, amyloid infiltration, fatty degeneration, do not give rise to the symptoms characteristic of Addison's disease. He also points out that bronzing of the skin is by no means the most essential symptom, as it is sometimes not present, and bears no necessary relation to the development of the constitutional symptoms, but may precede or follow these at a considerable interval.

In the last lecture, the author discusses the relation between the morbid anatomy and the symptoms, and comes to the conclusion that the latter cannot be ascribed to the disorganisation and consequent arrest of functions of the capsules themselves, but to the implication of the sympathetic ganglia; and he attributes many of the symptoms of the disease to paralysis of the vaso-motor nerves of the abdominal viscera, and consequent accumulation of the blood in those organs, with corresponding drawing away of the blood from other parts, thus in fact producing a condition of the vascular system resembling that to which the effects of 'shock' are now generally attributed. In this he agrees with Dr. Risel and other observers; but, in opposition to many German pathologists, he considers that the suprarenal disease is always the primary affection, and the implication of the nerves secondary.

In discussing the etiology, he points out the frequency with which it is associated with caries of the

spine, and psoas or lumbar abscess, or follows some sprain or injury to the back, and consequently considers it probable that in many cases the disease is due to extension to the capsules of inflammation of surrounding parts, or is the result of direct injury. With regard to treatment, not much can be expected from it, as the disease appears to be inevitably fatal; though remissions, which may last a considerable time, are often observed. Of actual remedies he seems to find glycerine one of the most useful, and in this he is in accordance with other observers.

The lectures are extremely well and clearly written, and contain a vast amount of information bearing on the subject, collected from all sources, and thoroughly worked up and systematised.

A Study of the Movements of the Unimpregnated Uterus. By ELY VAN DE WARKER, M.D., Syracuse, N. Y., pp. 26. New York, 1875.

In this pamphlet the author gives the results of a graphic manometer in a series of experiments undertaken in order to demonstrate uterine movements. 'It is,' to quote his words, 'an attempt to obtain data having mathematical value, and thus raise many of the questions in diseases of women above the plane of pure speculation and theory.'

The manometer used may be very briefly described as an U-shaped glass tube containing mercury, connected by an India-rubber tube with a water-bag placed in the vagina; the readings are marked off on a revolving cylinder by a pen attached to a float on the mercury in the distal end of the glass tube.

The experiments were made on seventeen women, of whom some were in good health, some affected with uterine or vaginal disease.

Fourteen tracings are given which are interesting to examine; but the briefness of this notice prevents a detailed account of them from being given.

The points most worthy of remark are (1) that respiration movements are accurately recorded, these movements being modified by the position of the body of the subject; (2) that the uterus is not too far off to be influenced by articulation, so that a wave of respiration may be modified (a) by the position of the woman, and also (b) by articulation, so as to leave wavelets produced on its surface. [Query, with improved instruments, might not articulated words be made graphically visible to the deaf?]

The most interesting table is that which shows the different degree of pressure (weight) exerted by the uterus in different positions of the body. We will give one instance as an example. 'No. 3. Vaginal water-bag distended with 3vj. of water. Subject on her back, = zero; sitting, = '6; standing, = 1'1; squatting = '2.'

Now, it seems to us that in the position of the pelvis which a woman's ordinary sitting angle gives, there should be an increase of pressure instead of a decrease, as the pubes and anterior abdominal wall receive less of the superincumbent weight than in the upright posture; but the author afterwards explains that in the sitting posture the subjects leaned forwards, and in the squatting necessarily still more so. None of the subjects experimented on were over forty-four years of age; but it would be interesting to have some observations made on old women at the time when—the lumbo-sacral curve tending to become obliterated, and the vaginal wall to lose some of its sustaining power—the uterus begins to fall. Dr. Van de Warker finds the contractile power of the vagina increases from within outwards,

and its contractility being a measure of its power as a supporting organ, it follows that old age in women that have had many children is a very favourable factor in prolapsus uteri.

We consider the summing up of the practical utility of such a paper as the foregoing to be the demonstration that natural forces producing a given result, normal or morbid, are weaker than we generally suppose—that the production of changes which have pathological importance are not the results of the application of considerable force, or impulses, but an alteration in the balance of, or a prolonged persistence in, the action of normal, and by no means considerable, forces.

The Inflammatory Origin of Phthisis; a Clinical Lecture. By JAMES H. HUTCHINSON, M.D., Physician to the Pennsylvania Hospital. 1875.

In this lecture the author supports Niemeyer's view that phthisis is commonly due to catarrhal pneumonia, and that tuberculosis is secondary to the inflammatory changes. He also agrees with Niemeyer in holding that pulmonary hæmorrhage may be the cause of phthisis, from the irritation set up by the decomposition of the blood impacted in the air-cells. There is nothing new in the arguments he adduces in favour of these opinions.

The subject of the lecture was a man, aged thirty-three, of intemperate habits, without any hereditary or constitutional predisposition to the disease, in whom consolidation and softening of the left apex followed taking cold, with a relapse after a second exposure to cold and wet. The author states that out of seventy-three cases of phthisis which had been under his care in the hospital, fifty-three patients were able to trace back their illness to a definite commencement, and in thirty-one of these this followed upon getting wet or chilled.

Catarrhal pneumonia he considers to be the form of inflammation of the lungs to which persons of debilitated constitutions are especially liable; and except in the very young the inflammation usually extends insidiously from the bronchial tubes to the alveoli, the epithelium of which proliferates and desquamates; these cells may, he says, be found in large numbers in the catarrhal expectoration. He accounts for the apices being the parts of the lung usually affected by the fact that the respiratory movements are naturally much more feeble in them even in health, this comparative immobility being much increased in badly formed chests with weak muscular development. In consequence of this, the bronchitic secretions are apt to stagnate in the upper parts of the lungs, and so cause irritation.

The blocking of the alveoli with epithelium causes arrest of the circulation in the capillaries by pressure, and gives rise to caseation and softening. The greater or less rapidity with which tubercle becomes developed, he thinks, may depend upon the amount of the reactive interstitial inflammation, which causes the formation of fibrous tissue, by which these caseous deposits may become encapsuled; if this take place, absorption of the caseous matter, and consequent tuberculous infection, is hindered.

In the treatment of catarrhal pneumonia, if anti-phlogistic remedies be required, those should be employed which reduce the temperature without depressing the strength. He finds especially useful six or eight grains of quinine daily, either alone or combined with opium and digitalis.

Zoology for Students. A Handbook. By C. CARTER BLAKE, D.Sc. London: Daldy, Isbister & Co. 1875.

In a handy little volume of nearly four hundred pages, Dr. Carter Blake has provided for students an excellently written and very readable account of the animal kingdom. Though it is modestly entitled merely 'zoology,' it is in fact a comparative anatomy also, an enumeration of the leading points of structure of the larger groups. The 'students,' to whom it is addressed, must necessarily be medical students, since the first chapter takes for granted that its reader understands what is meant by the terms 'diaphragm,' 'mammary glands,' 'apophysis,' etc. We think the author has done well to avoid troubling beginners with the more recently proposed classifications of Birds; but we cannot approve of his junction of the Batrachians in one class with the Reptiles, or of his separation of Man in a subclass Archencephala, in which he has, of course, followed Professor Owen.

The union of the Crustacea with the Arachnida is one which some recent observations have done much to justify; but we think that if so large a mass of forms be so united in one great class, the Cirripedia should not be excluded from it.

These, however, are matters of opinion; and the mode the author has followed in these instances, though it is not the one we should have adopted, is not calculated to mar the real value of a book which, we are sure, will be of much utility to a large class of readers.

We regret that the illustrations are not more numerous and of a better character; they certainly are not so good as the matter of the text merits.

PUBLICATIONS OF THE MONTH.

Messrs. J. and A. Churchill have issued this month the first fasciculi of some valuable illustrated books, which will be published in parts. First among these must be ranked Mr. JONATHAN HUTCHINSON'S *Illustrations of Clinical Surgery*. The first fasciculus, Plates I. to IV., price 6s. 6d., contains admirable portraits of cases of Encephalocele, Ivory Exostosis of the Orbit, Rodent Ulcer, and different varieties of Chancre. The beauty and fidelity of the illustrations are worthy of the highest commendation, and the commentaries are, as might be expected, judicious, learned, and suggestive. This will be a book of great value.—Dr. TILBURY FOX'S *Atlas of Skin Diseases*. Part I., price 6s. 6d. The part contains four large coloured lithographic plates of Erythema and Urticaria, including seven figures. This Atlas will be largely founded on the well-known plates of Bateman and Cullan, completing and correcting their delineations. The commentary is excellent, though perhaps a little too dogmatic and self-important.—We have no other words than of praise for a new work on *Medicinal Plants*, of which Part I. has just been issued by the same publishers. The price is 5s. The text gives a description of the principal plants employed in medicine, and an account of their properties and uses, by Professor BENTLEY and Dr. HENRY TRIMEN. The illustrations are lithographed by Stanhart, from original drawings by Blair, and the whole book, which was one greatly wanted, is excellently conceived and executed.—Mr. WAGSTAFFE'S *Manual of Osteology*, from the same publishers, is illustrated on the plan of Holden's book; the descriptions of bones are very clear and systematic,

but very much condensed. A good deal of attention is given to the mechanism of the bones, a good, and in some degree a novel feature in a work of the kind.

Messrs. Smith, Elder, & Co.'s publications include a volume of Dr. RUMSEY'S *Essays on Vital Statistics*, and others subjects interesting to the students and practitioners of public medicine. Dr. Rumsey's writings have greatly influenced the legislation and formed the public opinion of his age; and almost more than any one he has founded and led the movement towards the cultivation of State Medicine, by which the British Medical Association forced on the Government the appointment of a Royal Sanitary Commission, and laid the foundations of a new department in health legislation. Dr. Rumsey's essays are classic, and should find a place in the library of every statesman, and of every local administrator of health, as well as of sanitary officers.—Dr. KLEIN'S *Anatomy of the Lymphatic System*, No. II., is, like the first part, based on researches undertaken for the medical department of the Privy Council. It describes and illustrates, by plates of singular beauty, the normal and pathological conditions of the pulmonary pleura and the lung proper, as regards its lymphatic system, in health and under the influence of acute tubercular disease.—Dr. CAMPBELL BLACK'S book on the *Functional Diseases of the Urinary Organs*, appears, we are sorry to see, in a second edition. Scientific men do not need such a book; to any others, the perusal of details of the kind here collected must be hurtful. The subject is amply treated in systematic works. And discussions and collections of this kind, although peculiarly attractive to non-medical readers, are, in our opinion, more calculated to do harm than good.—Mr. SPENCER WATSON'S *Diseases of the Nose and its Accessory Cavities* is a totally complete monograph, but somewhat too bulky and undigested. The nose, it seems, has hitherto wanted its 'vates sacer.' Mr. Watson is very painstaking, and has occupied the field very completely. The book includes five plates, and thirty-six wood-cuts. It is a stout octavo of 472 pages. Not only are complaints of the bones, mucous membrane, nerves of sense, etc. treated, but the skin-diseases of the nose have a chapter, and there is a final chapter on the function of smell, in its relation to hygiene, sanitary science, and medico-legal questions.

Dr. LEISHMAN'S recent *System of Midwifery* (Maclehose, Glasgow), appears in a new edition, which is not only revised but cheaper. It sells now for twenty-one shillings; the former price was thirty shillings.

Air and its Relations to Life. By WALTER NOEL HARTLEY, M.D. (Longmans) is a clear and popular exposition of the relations of the atmosphere to man, including the bases of the doctrine of ventilation, and a review of Pasteur's work. The methods of air-analysis are detailed, and the modern discussion of atmospheric germs is clearly rendered.

NEW INVENTIONS.

ALLEN'S IMPROVED TUBULAR BEDSTEAD.

We have pleasure in drawing attention to a great improvement in the manufacture of invalid or hospital beds, which has been made by Mr. Allen of Bristol.

Mr. A. Allen, in his patent bedstead, places the laths along the entire length of the bedstead instead of from side to side; the great advantages of this system being that fewer laths are required, and those few are easily shifted for cleansing or for removing a patient, a more thorough ventilation of the bed is obtained, and, what is of greater importance, the laths themselves in this position possess sufficient elasticity to secure ease and comfort to the patient without the extraneous aid of metal springs. The great saving of expense which the omission of this item alone will effect is at once apparent. The laths themselves are made of pitch pine, which material is said to possess an immunity from vermin, and the construction of the bed necessitates a much smaller number of groves or lath-rests, as the possible harbour of dirt, vermin, or the germs of disease. The frames are made of metal tubing, and the joints are close fitting, so that they are readily cleansed, easily taken to pieces and put together again, and the wear and tear of the bedding is reduced to a minimum. These advantages render these bedsteads specially adapted for use in hospitals, lunatic asylums, and other large institutions, where cleanliness, economy and comfort are of the highest importance. They have been in use in several asylums for some years past, notably in the Kent County Asylum, Bristol General Hospital, and are highly spoken of by Dr. Horace Swete, Dr. H. Bryden, of the Stockport Infirmary, Mr. Thos. Hogg, of the Bideford Infirmary, and others who have been supplied with them.

The London agent for supplying these bedsteads is Mr. H. Craik, of Mincing Lane, E.C.

ARNOLD'S NEW STETHOSCOPE.

An exceedingly ingenious modification of the stethoscope has just been introduced by Messrs. Arnold and Sons, of 35 and 36 West Smithfield, the design having been given by Drs. Reid and Morison, of Canonbury. This form of instrument is alleged by the inventors to possess many advantages over that in ordinary use. Amongst others are: 1. The ease with which patients may be auscultated in otherwise inaccessible positions; 2. The comparative safety from infection; 3. The possibility of carefully regulating the pressure on the chest-pieces, especially in the case of aneurism, blood-vessels, etc., and in



children and sensitive patients; 4. The construction of the ear-peg; 5. The ease with which the observer may use his eye and ear at the same time. The instrument is composed of a piece of silk-covered tubing of an almost uniform diameter, two feet in length, provided with a chest-piece and ear-peg made of polished vulcanite of such a form that it will fit the opening of any ear without entering so far as to cause tinnitus, and hence misleading the auscultator.

The instrument is constructed on sound philosophical and acoustic principles, and gives excellent results. One other very great advantage possessed by this instrument is, that it avoids the necessity of

too close a contact with an infectious or uncleanly patient, and thus to a great extent removes the consequent danger to the operator.

MILLIKIN'S IMPROVEMENTS IN TRUSSES.

Messrs. Millikin, of St. Thomas's Street, Borough, have introduced an important improvement in the mechanism of trusses. The improvement is due to the introduction of a ball-and-socket adjustable screw to the pad of the truss, which is affixed to the ordinary C spring.



This arrangement enables the pad to be readily adjusted to suit varying conditions of the rupture, as the pad can be applied at any angle which may be required, so that these trusses are suited equally to inguinal, scrotal, or femoral hernia.

Messrs. Millikin deserve special praise for the perfection and finish which they have brought to bear upon all their various appliances for the cure and relief of surgical diseases.

QUINETUM.

Mr. Thomas Whiffen, of the Quinine Works, Battersea, introduces to the notice of the profession a preparation of this name, which contains the whole alkaloids separated from East India red bark.

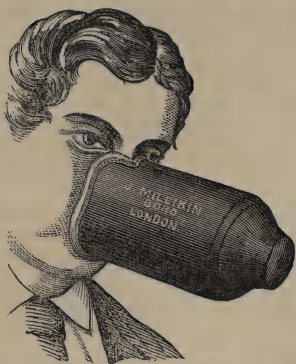
Quinetum is a finely granular, non-adherent powder, of a pale buff colour. The proportions of the various alkaloids present of necessity vary with the sample of bark used. Sulphate of quinetum is a white crystalline body, with a faint pink tinge, greatly resembling sulphate of quinine. It dissolves readily in dilute acids, and the solution exhibits a strongly marked fluorescence.

A preparation corresponding to quinetum has been used for some time in India with marked success, particularly in the hospitals; and it has the advantage of being about half the price of quinine, whilst it is stated to be nearly equal to it in efficiency.

NEW ETHER-INHALER.

This inhaler has been manufactured by Mr. Millikin, the surgical-instrument maker, from suggestions furnished by Mr. Golding Bird. The advantages claimed for it are simplicity and cheapness, as compared with the usual ether-inhalers. The waste of the anæsthetic by evaporation is reduced to a minimum by the fact that the inspired air enters by the aperture at the apex, guarded by a valve opening inwards; and the expired air passes out by that just above the nose, where there is a valve which opens outwards. The mouthpiece includes all, from the

bridge of the nose to the chin, and is so arranged as to be practically air-tight to all faces. The instrument is light; is lined with a waterproof material, and its edge is bound with soft leather, either of which will wash; but, if desired, a thin flannel bag, carrying the sponge, can be inserted, and its mouth



be turned up all round outside the mouthpiece of the inhaler, and so each patient can have the advantage of a clean instrument. It is used, not only for ether, but also for the mixture of alcohol (one part), chloroform (two parts), and ether (three parts). It is designed to embrace some of the advantages of the more elaborate inhalers, and to do away with the waste of the anæsthetic that is always caused where a sponge and towel, or felt inhaler, is employed.

DIETZ'S LAMPS AND STOVES.

The disadvantages inseparable from the use of gas in dwelling-rooms have of late greatly stimulated the manufacture of improved lamps adapted to consume the hydro-carbon oils, as they are termed; as, for instance, Strange's crystal and Driver's petroleum oils. In the first rank of these lamps may be placed the 'Paragon' lamp, patented by Messrs. Dietz and Co., which possesses the advantages of being strong, durable, simple in form, yields an intense light, needs but little trimming, is quite inodorous, owing to a perfect combustion of the oil, and is economical in use. This lamp is constructed on scientific principles, and its essential portion is so compact that it can be put by during the day, and placed upon the most delicate china vase, when in use, without soiling it. It is also adapted for burning in chandeliers, where a multiplicity of lights is desired. Each wick will last, as a rule, a month; the lamp only burns two ounces of oil per hour, and therefore needs replenishing about every twelve hours; the oil will cost one farthing per hour; and the light yielded is equal to twenty-three sperm candles. An ingenious and novel arrangement whereby the lamp can be filled with oil without removing the burner, is another good feature in these 'Paragon' lamps.

An adaptation of the 'Paragon,' called the 'Hurricane' lamp, will be found useful for the farm, stable, cellar, or yacht; it cannot be extinguished by any amount of violent swinging to and fro, nor can the oil in it be spilt.

A stove named the 'Climax,' also patented by Messrs. Dietz, is made in two varieties, and in several sizes. One kind is applicable for heating purposes, and will be found especially useful for the warming of small rooms, and for greenhouses and

conservatories. Another kind takes the form of a clean and portable apparatus, capable of cooking a bachelor's meal, or of producing a hot dinner of several dishes for a dozen persons.

RECENT FRENCH BOOKS.

Published by Germer-Baillière.

- Sarcocèle et phthisie cancéreuse; par le docteur G. M. Picard. In-8. Prix: 1 fr. 50.
- L'Ecole de Salerne, avec la traduction burlesque du docteur Martin, nouvelle édition, revue par Philibert Le Duc, membre de l'Académie de Lyon, etc. 1 vol. petit in-8. Prix: 3 fr.
- De la glycosurie dans le cas d'obstruction totale ou partielle de la veine porte (glycosurie alimentaire de Cl. Bernard); par le docteur L. Couturier. In-8. Prix: 1 fr. 50.
- De l'opportunité de l'anus artificiel, dans les cas de tumeurs du rectum; par le docteur Richard. In-8. Prix: 1 fr. 50.
- Contribution à l'étude des lésions syphilitiques des artères cérébrales; par le docteur Rabot. In-8. Prix: 1 fr. 50.
- Du bruit de souffle mitral dans l'ictère; par le docteur L. Gangolphe. In-8. Prix: 1 fr. 25.
- Des progrès que l'histologie a fait faire au diagnostic des tumeurs; par le docteur Pénier. In-8. Prix: 2 fr. 50.
- Des troubles psychiques qui peuvent se présenter dans le cours de la phthisie pulmonaire chronique; par le docteur Le Mat. In-8. Prix: 1 fr. 50.
- De la mamelle et de l'allaitement; par Mme. M. Brès, docteur en médecine. In-8, avec 4 planches. Prix: 4 fr.
- Science et miracle, ou la stigmatisée belge; par le docteur Bourneville. In-8, avec 1 planche. Prix: 2 fr. 50.
- Hystérisme et hystérie, ou sommeil hystérique en particulier; par le docteur Espanet. In-8. Prix: 1 fr. 50.
- Contribution à l'étude de la consanguinité; par le docteur Hélot. In-8. Prix: 2 fr.
- Contribution à l'étude des métamorphoses et du dosage de l'acide urique; par le docteur Magnier de la Source. In-8. Prix: 1 fr. 50.
- Contribution à l'étude de l'hypertrophie de la prostate; par le docteur Zambianchi. In-8. Prix: 1 fr. 50.
- Du rhumatisme syphilitique; par le docteur Vaffier. In-8. Prix: 2 fr.
- Recherches et extraction des alcaloïdes, découverte de la ptérocarpine; par M. le docteur Cazeneuve. In-8. Prix: 2 fr. 50.
- Opération et guérison d'un kyste hydatique suppuré du foie; par le docteur Lajoux. In-8. Prix: 1 fr.
- De la torsion des artères; par le docteur Magon. In-8. Prix: 1 fr. 50.
- Etude critique sur les divers modes de traitement du rhumatisme nouveau; par le docteur Lupus. In-8. Prix: 1 fr. 50.
- Des manifestations syphilitiques chez la femme enceinte et les nouvelles accouchées; par le docteur J. Moret. In-8. Prix: 2 fr. 50.
- Note sur les inflammations et abcès de la prostate; par le docteur Henri Picard. In-8. Prix: 1 fr. 50.
- Recherches thérapeutiques sur la cinchonine; par le docteur Paliard. In-8. Prix: 1 fr. 50.
- Recherches expérimentales sur le protoxyde d'azote; par le docteur Tony Blanche. In-8. Prix: 2 fr.
- Des synovites tendineuses symptomatiques de la syphilis et de la blennorrhagie; par le docteur Charles Maurice. In-8. Prix: 1 fr. 50.
- De l'hémianesthésie saturnine; par le docteur de Cours. In-8. Prix: 1 fr. 50.
- Code du médecin, recueil complet de la législation et de la jurisprudence sur la profession, comprenant le service de santé de l'armée et de la marine; par A. Parrot-Larivière. 1 vol. in-32. Prix: 5 fr.
- De la dengue (fièvre éruptive des pays chauds) et de sa distribution géographique; par le docteur Morice. In-8. Prix: 1 fr. 50.
- De l'anesthésie produite par injection intra-veineuse de chloral, selon la méthode de M. le professeur Oré; par MM. les docteurs Deneffe et van Wetter. In-8. Prix: 3 fr. 50.

- Des lésions traumatiques du foie ; par le docteur Roustan. In-8. Prix : 3 fr.
- Shang-Hai, au point de vue médical. Contribution à la climatologie médicale ; par le docteur Galle. In-8. Prix : 2 fr.
- Des causes anatomiques de la cataracte spontanée ; par le docteur Chiray. In-8. Prix : 1 fr. 25.
- D'un phénomène stéthoscopique propre à certaines formes d'hypertrophie simple du cœur ; par le docteur Exchaguet. In-8. Prix : 2 fr.
- Recherches expérimentales sur l'action physiologique de la respiration d'air comprimé ; par le docteur Ducrocq. In-8. Prix : 1 fr. 50.
- Leçons sur le système nerveux, faites à la Salpêtrière ; par le docteur Charcot, professeur à la Faculté de médecine de Paris, etc., recueillies et publiées par le docteur Bourneville, 2e édition, revue et augmentée. Tome 1er, 1 vol. in-8, avec 9 planches en chromolithographie, 1 eau forte et 27 figures intercalées dans le texte. Prix : 12 fr. ; cartonné, 13 fr.
- Tableaux synoptiques des mouvements des yeux et de leurs anomalies ; par le docteur Landolt. Prix : 1 fr. 50.
- Contribution à l'étude des anomalies des cloisons cardiaques ; par le docteur Ch. Poché. In-8. Prix : 2 fr.
- Dans quels cas est-il permis de provoquer l'avortement ? par le docteur de Soyre. In-8. Prix : 4 fr.
- De la glycosurie ou diabète sucré ; son traitement hygiénique avec notes et documents sur la nature et le traitement de la goutte, la gravelle urique, l'oligurie, le diabète insipide, avec excès d'urée, l'hippurie, la pinélihorée, etc. ; par A. Bouchardat, professeur d'hygiène à la Faculté de médecine de Paris. 1 fort volume, grand in-8. Prix : 15 fr.
- Etude médicale sur l'extatique du Fontet ; par les docteurs E. Mauriac et H. Verdalle, rédacteurs de la Gazette médicale de Bordeaux. Paris, 1875, in-8 de 70 p. Prix : 2 fr.

Published by A. Delahaye.

- Recherches thérapeutiques sur la cinchonine ; par le docteur Paliard. In-8. Prix : 1 fr. 50.
- De la voix humaine ; par le docteur Paul Koch. In-8 de 48 pages.
- De la phthisie laryngée ; par le docteur Paul Koch. In-4 de 44 pages.
- Leçons de thérapeutique générale et de pharmacodynamie ; par le docteur Armand de Fleury. In-8. Prix : 8 fr.
- Essai sur les signes du diagnostic de l'insuffisance mitrale ; par le docteur Tridon. In-8. Prix : 1 fr. 50.
- Conférences de cliniques chirurgicales, faites à l'hôpital Saint-Antoine par le docteur Benjamin Anger. In-8. Prix : 2 fr.
- Du traitement de la syphilis par les fumigations mercurielles ; par le docteur Ch. Mauriac. Prix : 1 fr.
- Du rôle des parasites dans la diphthérie ; par le docteur Duchamp. In-8. Prix : 1 fr. 50.
- Considérations sur les mouvements de l'iris ; par le docteur Debouzy. In-8. Prix : 1 fr. 50.
- De quelques principes fondamentaux de la thérapeutique, applications pratiques, recherches sur les propriétés thérapeutiques du sulfate de quinine, de l'eau froide, de l'arsenic, du seigle ergoté, du tannin et du permanganate de potasse, de la pathogénie des lésions morbides et du traitement rationnel du choléra, par le docteur Duboué (de Pau). 1 vol. in-8. Prix : 2 fr. 50.
- Etude sur le catarrhe de l'oreille moyenne dans le cours de la rougeole ; par le docteur Cordier. In-8. Prix : 1 fr. 50.
- Des urines icériques des pseudo-icériques ; par le docteur Rousseau. In-8. Prix : 2 fr. 50.
- Contribution à l'étude de la gale, par le docteur Mailhetard. In-8. Prix : 1 fr. 50.
- De la marche et de la durée du chancre syphilitique et des syphilides vulvaires pendant le cours de la gestation ; par le docteur Cernatesco. In-8. Prix : 2 fr.
- Leçons cliniques sur une nouvelle méthode de traitement de la blennorrhée (goutte militaire) ; par le docteur Tartenson. In-8. Prix : 1 fr.
- Contribution à l'étude de la gale ; par le docteur Mailhetard. In-8. Prix : 1 fr. 50.
- Du staphyloème opaque et de son traitement ; par le docteur Duquesnay. In-8. Prix : 1 fr. 50.
- Etudes cliniques sur quelques tumeurs malignes du maxillaire supérieur, et principalement sur le cancer de cet os ; par le docteur Guillaume. In-8. Prix : 2 fr.

- La pleurésie dans la gangrène pulmonaire ; par le docteur Bucquoy. In-8. Prix : 1 fr. 50.

Published by G. Masson.

- Etude sur la phthisie pulmonaire au point de vue du traitement ; par le docteur Lassallas, ancien interne des hôpitaux de Paris. In-8 de 103 pages. Prix : 3 fr.
- Causes et mécanisme de la coagulation du sang et des principales substances albuminoïdes ; par le docteur Ed. Mathieu, médecin major, et V. Urbain, ingénieur, répétiteur à l'Ecole centrale. In-8 de 285 pages. Prix : 6 fr.
- Traité des maladies et des épidémies des armées ; par A. Laveran, médecin major, professeur agrégé au Val-de-Grâce. In-8 de xxviii-736 pages. Prix : 10 fr.
- De l'influence des maladies constitutionnelles sur la marche des lésions traumatiques ; par le docteur Paul Berger, professeur à la Faculté de médecine. In-8 de 180 pages. Prix : 4 fr.
- De la valeur de l'hystérotomie dans le traitement des tumeurs fibreuses de l'utérus ; par le docteur Samuel Pozzi. In-8 de 160 pages, avec une planche, 5 figures et de nombreux tableaux. Prix : 5 fr.
- Action des eaux de Vichy sur la composition du sang.—Réfutation expérimentale de la prétendue anémie alcaline, par Zénon Pupier, médecin consultant aux eaux de Vichy. In-8 de 168 pages. Prix : 2 fr. 50.
- De l'hématocèle péri-utérine ; par le docteur Nachtel. In-8 de 60 pages. Prix : 1 fr. 50.
- De la rétinite pigmentaire. Etude clinique, avec quinze observations nouvelles et 4 figures en chromo-lithographie ; par le docteur Edouard Hocquard, aide-major stagiaire au Val-de-Grâce. In-8 de 93 pages. Prix : 4 fr.
- Des accidents qu'on observe dans les hautes ascensions aérostiques et des effets de l'altitude sur les habitants des montagnes ; par le docteur Chabert. In-8 de 50 pages. Prix : 1 fr. 50.
- Recherches expérimentales sur les effets physiologiques de l'augmentation de la pression atmosphérique ; par le docteur J.-C.-T. Pravaz.

Published by P. Asselin.

- Recherches expérimentales sur le mécanisme de la déglutition ; par le docteur L. Fiaux. 1 vol. gr. in-8 de 150 pages, avec 2 planches. Prix : 3 fr. 50.
- Des arthropathies d'origine nerveuse ; par le docteur A. Blum, professeur agrégé à la Faculté de médecine de Paris. 1 vol. in-8 de 105 pages, avec 1 planche. Prix : 3 fr. 50.

Published by Octave Doin.

- Nouveau forceps asymétrique ; par le docteur Roger (du Havre). In-8 de 50 pages. Prix : 2 fr.
- De l'éléphantiasis du scrotum ; par le docteur Broquère. Paris, 1875. In-8 de 92 pages, avec 2 planches lithographiées. Prix : 4 fr.

Published by J. B. Baillière and Sons.

- Le bassin dans les sexes et dans les races ; par le docteur R. Verneau. 1875. 1 vol. in-8 de 156 pages, avec 16 planches lithographiées par H. Formant. Prix : 6 fr.
- Des contre-indications de la version dans la présentation de l'épaule et des moyens qui peuvent remplacer cette opération. Thèse présentée au concours pour l'agrégation (section de chirurgie et d'accouchements) ; par le docteur Adolphe Pinard. Paris, 1875, gr. in-8 de 140 pages. Prix : 4 fr.

MISCELLANY.

MORBID APPETITES OF THE INSANE.—The Journal of *Psychological Medicine* for October contains an article on the morbid appetites of the insane, by Dr. W. A. F. Browne. To show how general are these morbid instincts when there is mental disease, we subjoin the following as the proportions of the different classes treated of in the paper. Out of 355 patients treated in the lower walks of life, 73 were fæcophages, 12 sarcophages, 11 lithophages, and 29 phytophages. Of 155 patients of the affluent classes, 4 were fæcophages, 5 lithophages, and 8 phytophages.

LUNACY IN ENGLAND.—According to the twenty-ninth annual report of the Commissioners of Lunacy, on January 1 of the present year there were on the official books of the Commissioners 63,793 registered lunatics, showing an increase of 1,766 on the preceding year. Of this number, 7,390 were registered as private lunatics, and 56,403 as pauper lunatics. The increase during the year of private patients was ninety-eight, and of paupers 1,668. It is a matter of congratulation to find that the recoveries were 4 per cent higher than they were last year, and 2 per cent. above the average of the last sixteen years, whilst the rate of mortality has remained stationary.

THE PROGRESS OF MEDICINE IN JAPAN.—A communication published in the *New York Medical Record* of October 9 gives a very favourable account of the progress of the arts of surgery and medicine in Japan. By order of the chief surgeon to the Japanese army, a translation of Professor Gross's *Manual of Military Surgery* has been made, and a copy of it forwarded to the author, with a very complimentary letter. The same communication states that small-pox, which for ages has been a terror and scourge in Japan, has been checked by the introduction of vaccination. It is stated that a Japanese physician, aided by his assistants, has within three years vaccinated no fewer than 70,000 persons in the city of Yeddo.

At the last meeting of the Society of Biblical Archaeology, Professor Flower read a paper, 'Some Osteological Notes on the Egyptian Mummy in the collection of the Duke of Sutherland.' The paper contained a detailed report by the eminent osteologist of the condition of the skeleton of the mummy, from which it was shown to have been the skeleton of a man in advanced years, of short stature—i.e., 5 ft. 4 in. The left ulna had been fractured near its lower end at some period long before death; the bones of the trunk and legs showed traces of chronic rheumatic disease, the lumbar vertebrae being partly ankylosed; what teeth remained were in good condition, and the shoulders were distinguished by that remarkable squareness of form which was characteristic of the Egyptian race.

SMALL-POX MARKS A PASSPORT TO HEAVEN.—According to the *Tour du Monde*, the population of Yucatan amounted to 600,000 in 1848; two years afterwards it was reduced to 300,000, partly in consequence of the war with the Indians, and specially through an epidemic of small-pox. In order to avert the return of this terrible scourge, the Government decreed that vaccination should be compulsory; but up to the present time this decree has remained a dead letter. The reason is this: the inhabitants of Yucatan believe that the inoculation marks are the sign by which the Virgin Mary recognises her votaries, and to those, and none other, will she open the gates of Heaven. Consequently the Indians have the greatest horror of vaccination, and even go so far as to cut out the mark in the case of those of their body who have been persuaded to be inoculated.

THE VITALITY OF THE JEWISH RACE.—In the lecture on 'National Vitality,' delivered by Dr. Richardson at Brighton, during the meeting of the Social Science Association, he stated that the natural duration of life, physiologically, was fairly ninety years; it might be more, but not less; that 128,000 persons were living who had nearly attained that age; and that the highest authority in the kingdom had represented that 100 years would not be too long to represent the perfected life. But turning to the solemn fact of the actual standard in the country, it was positively thirty-two years; in our present circumstances only one-third of this period was actually lived. There was, however, an exception to this rule, owing to a difference in the vital value of different races. Though the differences arising from race in our country had not yet been collected, it was found, from the mortalities of other countries, such as France and Prussia, which were nearly the same as those of Britain, that the Jewish race possessed an exceptionally longer life than those around them. Neufville had shown that in Frankfort, while the

mean duration of life in the Jewish community was 49·9 years, that of the other population was 37·7; that a fourth of Jews born lived to be twenty-eight years and three months, while the same number born of the other population attained but six years and eleven months; that during the first five years of life 12·9 Jews died, of the other population 24·1. These figures showed that, though the modern Jews were still living far away from the natural standard of health, they were advanced beyond their fellows even in the midst of many surrounding disadvantages. Dr. Richardson also spoke of the comparative immunity from disease enjoyed by the same people, and referred it to the strict manner in which they examine their animal food, and, above all, to their remarkable temperance—a virtue which is, no doubt, referable to their oriental origin.

THE WATER OF THE NILE.—In the Health Section of the late Social Science Congress at Brighton, Mr. Wanklyn read a paper on the waters of the Nile, showing the amounts of chlorine and of hardness at different periods. The rise of the Nile commences at the end of May, and lasts through June, July, and August, up to about the middle of September, when the decrease continues till Christmas. From Christmas till May the amount is tolerably constant. Just at the time of the beginning of the rise of the waters the chlorine is 1·8 grains per gallon, but at the time when the Nile has attained its greatest size it is only 0·3 grains, and it remains very little above that proportion to the end of the year. In marked contrast with the variableness of the chlorine is the constancy of the hardness. Mr. Wanklyn's explanation is that the storm-water which adds so much to the bulk of the Nile sweeps over the country without penetrating far below the surface, and such water passing over a country long ago denuded of salt could convey but little chlorine. He thinks that the *débris* carried down mechanically by the flood-water contains abundance of finely divided carbonate of lime, so that the storm-water would always be saturated by carbonate of lime. Hence the constant hardness. The water which feeds the Nile, apart from the storm-water, contains 1·8 grains per gallon; and it is the accession of storm-water with chlorine that causes the relative reduction. Similar features will probably be found in other large rivers which have a flood period.

TRINITY COLLEGE, DUBLIN.—There are three professorships in Trinity College, Dublin, which by the School of Physic Act (40 Geo. III., chap 84), become vacant at the end of every seventh year from the date of election; but it is also provided that every professor shall be capable of re-election. The three professorships are those of Anatomy, of Chemistry, and of Botany. The London and Dublin *Gazettes* announce that the least of these will be vacant on January 23, 1876, and that on January 29, 1876, the Provost and Senior Fellows will proceed to the election. All candidates are required to send their names, with the places of their education, the universities where they have taken their degrees, to the Registrar of Trinity College, Dublin, before January 22, 1876, and for further information are to apply to the Rev. Dr. Haughton, F.R.S., Medical Registrar of the School of Physic. The emoluments of the professor consist of 300*l.* a year, for which he is required to deliver, first, a course of lectures on Botany in the Arts School during each of the three college terms. Michaelmas Term commences early in October, and Trinity Term sometimes lingers on until the month of July. Secondly, he has to give a course of not less than forty lectures on Botany in the Medical School, commencing on April 1 and ending on July 1 in each year. As curator of the College herbarium, there is an additional salary of 50*l.* per annum. The professor being his own assistant, the whole work of arranging and sorting this well-known collection, as well as the correspondence incidental to such a charge, falls on the curator. The fees average a sum of about nine guineas a year, as the lectures are free to all students of the University. The present Professor, Dr. E. Perceval Wright, being eligible, is a candidate for reappointment.

CURRY-EATERS, BEWARE !—Dr. Henderson, of Lahore, in a letter to the *Indian Medical Gazette* of August 2, suggests that the jaundiced look which used to be peculiar to old Anglo-Indians was probably due to the quantity of curry they ate, rather than to the effects of climate. He asserts that Anglo-Indians in Upper India do not now acquire this peculiar tint, curry not being now eaten to anything like the extent it formerly was; indeed, scarcely at all, except at the tables of very old Indians. Some papers published by Dr. Garden, in the *Indian Medical Journal*, on 'Disorders of Pigmentation,' first drew Dr. Henderson's attention, he tells us, to the effect likely to be produced by a daily consumption of turmeric, which enters largely into the composition of curry. Dr. Henderson thinks it probable that the turmeric dye will tinge all the tissues of a yellow colour, if eaten daily for a number of years—a view in which he is supported by Mr. C. Wood, officiating professor of chemistry in Calcutta.

UNIVERSITY OF CAMBRIDGE EXAMINATION IN STATE MEDICINE.—The following list was issued on October 14. 'Examined in part I. only, and approved: Simpson, J., M.D. Examined in both parts and approved: Bird, P. Hinckes, F.R.C.S.; Britton, T., M.D.; Carpenter, A., M.D.; Cunningham, J., M.B., C.M.; Drew, S., M.D.; Dunlop, A., M.D.; Earle, B. N., M.B.; Fosbroke, G. H., M.R.C.S.; Harrison, C., M.D.; McBeath, W., M.D.; Mason, H. H., M.R.C.S.; Morison, J., M.D.; Nicholson, E., M.R.C.S.; Phillips, H. H. E., M.D.; Saunders, C. E., M.D.; Steele, S. T., L.R.C.P.E.; Swete, E. H. W., M.D.; Turner, G., L.R.C.P.L.; Underhill, A. S., M.B., C.M. Signed—G. E. Paget, A. W. Barclay, E. A. Parkes, and James Dewar, Examiners. The following form of certificate has been adopted to be given to candidates who pass both parts of the examination in State Medicine:—'Know all men by these presents that . . . having been duly examined by . . . the examiners in that behalf appointed by the chancellor, masters, and scholars of the University of Cambridge, and having approved himself to the aforesaid examiners by his knowledge and skill in sanitary science—to wit, in chemistry and physics, in the causes and prevention of epidemic and infectious diseases, and in the means of remedying or ameliorating those circumstances and conditions of life which are known to be injurious to health, as well as in the laws of the realm relating to public health—is certified to be well qualified in respect of his knowledge and skill aforesaid to fulfil the duties of a medical officer of health, in testimony whereof the Vice-Chancellor of the said University, by the authority of the said chancellor, masters, and scholars, has hereto set his hand and seal.'

MR. FRANCIS GALTON ON TWINS.—Mr. Francis Galton has been instituting inquiries into the subject of twins, 'as a criterion of the relative powers of nature and nurture.' He sent circulars of inquiry to persons who were either twins or the near relations of twins, containing thirteen groups of printed questions, of which the last asked for the addresses of other twins known to the recipient who might be likely to respond if he wrote to them. In this way Mr. Galton had a continually widening circle of correspondence, sufficient to provide him with a number of curious facts, which he has embodied in a paper published in *Fraser's Magazine* for November. The following passage from it refers to the question of likeness. 'One would have expected that twins would commonly be found to possess a certain average likeness to one another; that a few would greatly exceed that degree of likeness, and a few would greatly fall short of it; but this is not at all the case. Twins may be divided into three groups, so distinct that there are not many intermediate instances; namely, strongly alike, moderately alike, and extremely dissimilar. When the twins are a boy and a girl, they are never closely alike; in fact, their origin never corresponds

to that of the above-mentioned double-yolked eggs. I have received about eighty returns of cases of close similarity, thirty-five of which entered into many instructive details. In a few of these not a single point of difference could be specified. In the remainder, the colour of the hair and eyes were almost always identical; the height, weight, and strength were generally very nearly so, but I have a few cases of a notable difference in these, notwithstanding the resemblance was otherwise very near. The manner and address of the thirty-five pairs of twins is usually described as being very similar, though there often exists a difference of expression familiar to near relatives but unperceived by strangers. The intonation of the voice when speaking is commonly the same, but it frequently happens that the twins sing in different keys. Most singularly, that one point in which similarity is rare is the handwriting. I cannot account for this, considering how strongly handwriting runs in families, but I am sure of the fact. I have only one case in which nobody, not even the twins themselves, could distinguish their own notes of lectures, etc.; barely two or three in which the handwriting was undistinguishable by others, and only a few in which it was described as closely alike. On the other hand, I have many in which it is stated to be unlike, and some in which it is alluded to as the only point of difference.' Mr. Galton has a number of cases in which mistakes have been made about twins, and some of these show a great degree of likeness. Here is another interesting passage. 'Among my thirty-five detailed cases of close similarity, there are no less than seven in which both twins suffered from some special ailment or had some exceptional peculiarity. One twin writes that she and her sister "have both the defect of not being able to come down stairs quickly, which, however, was not born with them, but came on at the age of twenty." Another pair of twins have a slight congenital flexure of one of the joints of the little finger; it was inherited from a grandfather, but neither parents, nor brothers, nor sisters show the least trace of it. In another case, one was born ruptured, and the other became so at six months old. Two twins at the age of twenty-three were attacked by toothache, and the same tooth had to be extracted in each case. There are curious and close correspondences mentioned in the falling off of the hair. Two cases are mentioned of death from the same disease; one of which is very affecting. The outline of the story was that the twins were closely alike and singularly attached, and had identical tastes; they both obtained Government clerkships, and kept house together, when one sickened and died of Bright's disease, and the other also sickened of the same disease and died seven months later. In no less than nine out of the thirty-five cases does it appear that both twins are apt to sicken at the same time. This implies so intimate a constitutional resemblance, that it is proper to give some quotations in evidence. Thus, the father of two twins says: "Their general health is closely alike; whenever one of them has an illness, the other invariably has the same within a day or two, and they usually recover in the same order. Such has been the case with whooping-cough, chicken-pox, and measles; also with slight bilious attacks, which they have successively. Latterly, they had a feverish attack at the same time." Another parent of twins says: "If anything ails one of them, identical symptoms nearly always appear in the other; this has been singularly visible in two instances during the last two months. Thus, when in London, one fell ill with a violent attack of dysentery, and within twenty-four hours the latter had precisely the same symptoms." A medical man writes of twins with whom he is well acquainted: "Whilst I knew them, for a period of two years, there was not the slightest tendency towards a difference in body or mind; external influences seemed powerless to produce any dissimilarity." The mother of two other twins, after describing how they were ill simultaneously up to the age of fifteen, adds, that they shed their first milk teeth within a few hours of each other.'

The London Medical Record.

Authors of Papers, Theses, &c., will assist in the preparation of summaries by our reporters, by forwarding separate copies of their works.

ON THE CLINICAL IMPORTANCE OF FATTY EMBOLISM. BY PROFESSOR V. CZERNY, M.D., DIRECTOR OF THE SURGICAL CLINIC IN FREIBURG.*

The prognosis in simple fractures of the long bones is, under the present very complete methods of dressing, so favourable, that it usually does not occur to a medical man that an injury of this kind, without any further complications, in a man in the vigour of life, may quite unexpectedly and suddenly lead to death. The most frequently read treatises and manuals, the most celebrated general surgeons, do not, on account of this rareness, find it worth their while to refer to this most unpleasant complication of the course of a simple fracture. It is then very intelligible that such a case of death should make no small stir among the public. This was the case some time ago in the neighbourhood of Freiburg, where, some days after the burial of a man who had died after a fracture, the authorities ordered the body to be exhumed, and a *post mortem* examination to be made. I am indebted for the following particulars to the kindness of the medical man who had charge of the case.

R. W., aged twenty-four, strongly built, who had satisfactorily gone through his term of military service, was on November 16 buried above the chest by a fall of earth. When he was dug out it was found that his right thigh was broken obliquely in the upper third. The surgeon, who was at once called, applied a bandage, and observed that the patient complained very little of the local pain at the seat of fracture; but much of great difficulty in lying, especially on his back, saying that his breathing was impeded. During the subsequent nights, distressing sleeplessness was the most troublesome symptom. Beyond cold applications, no medicine was used. On November 18, the swelling, which was at first very great, had essentially abated, and a starched bandage was applied, during the application of which the patient was evidently distressed, being able only with difficulty to keep himself in a half-sitting position. On the night of the 20th and 21st, dyspnoea set in, without any inflammatory symptoms or rigors, but with strong symptoms of compression of the brain, which increased in spite of antiphlogistics. He died on November 22.

At the *post mortem* examination made on December 5, the following were the principal appearances. 1. The broken ends of the bone were in normal position. 2. Both lungs were full of venous blood. 3. The membranes, substance, and vessels of the brain were charged with venous blood. The medico-legal report stated that (1) The death of R. W. stood in causal connection with the accident; (2) The pressure

to which he was subjected was so powerful that the thigh must have been bent and then broken, and the thoracic organs crushed; (3) The results of the injury were reduced innervation, disturbed circulation, effusion of blood, total abolition of nerve-power, paralysis, and death.

The reporter acknowledges that the account of the necropsy is rather a description of the circumstances than a scientific proof of the cause of death. He is, however, not to be blamed for this, since, as has been said, the handbooks most in use are silent regarding these cases of sudden death, and, even in very recent reports, the cases have been explained by other complicating injuries, or by affections of the central nervous system (shock, delirium, trismus in rare cases). Other authors seek the cause in alcoholism, diabetes, or some unknown dyscrasia.

It was through the doctrine of thrombosis and embolism that some cases were explained on another material basis. In 1863 Meissner (Schmidt's *Jahrbücher*, Band cxvii.), and 1864 Azam (*Ibid.* Band cxxxi.), collected several cases in which, after relatively unimportant injuries, either sudden death or sudden dyspnoea occurred, which could with more or less probability be explained by pulmonary embolism, as from a dislodged clot of fibrin.

In 1863, Zenker (*Beiträge zur normal. und patholog. Anatomie der Lunge*) and E. Wagner (*Archiv für Heilkunde*, vol. iii.) described fatty embolism of the lungs: the former held it to be of no practical importance; while the latter, observing it to occur most frequently in connection with metastatic abscesses, pointed out a connection between it and these abscesses. In Wagner's first edition the anatomical description was so sufficiently given, that nothing new could since be added in that direction. In his second edition (1865) he expressed the opinion that sudden fatty embolism might indeed give rise to hyperæmia of the lungs, œdema, and death; but he could not adduce sufficient proof.

The first case in evidence was published by F. Busch, of von Recklinghausen's Institute (Ueber Fettembolie, Virchow's *Archiv*, Band xxxv.). By his researches, Busch ascertained that the fat of the broken up marrow, having been taken up principally by the veins, but also by the lymphatics, produced embola in the lungs and caused death. But these important facts were not sufficiently put forward, and were lost in a criticism of Wagner's opinions. This may have been the reason why the article did not attract so much attention as it deserved. Bergmann (*Zur Lehre von der Embolie*, 1863, and Schmidt's *Jahrbücher*, Band cxxxi.) has established by experiment that pure fat, as such, is not capable of producing inflammatory foci in the lungs. Cohnheim (*Untersuchungen über embolische Processe*, 1872) has sufficiently explained under what circumstances fat, when it obstructs the pulmonary capillaries, may produce hyperæmia and even hæmorrhage.

Cases have, indeed, now and then been reported (as by Lücke and Feltz) in which sudden death has been ascribed to fatty embolism; but so rarely, that it must be concluded that physicians have not yet become thoroughly convinced of the importance of fatty embolism. Not a syllable is said on this possibility in works on sudden death after trivial injuries (Verneuil, Bell, Tillaux). Even the abundant material in fractures during the last war has not advanced our knowledge of fatty embolism; although, indeed, Fischer, in his *Kriegschirurgie*, has referred to the importance of von Recklinghausen's

* *Berliner Klinische Wochenschrift*, November 1 and 8.

observations. As far as I can see in the surgical literature of the last war, Klebs alone mentions fatty embolism as occurring during osteomyelitis, and expresses the opinion that it frequently attends osteomyelitis, and is so extensive as to be essentially capable of producing death. It can be confidently affirmed, that fatty embolism has not yet become a fact in pathological anatomy, the importance of which in clinical and forensic medicine has been recognised. The following case may, perhaps, contribute to the removal of this disregard.

Death from Fatty Embolism after Simple Fracture of the Femur.—Josef S., aged thirty-two, a healthy strongly built man, fell, on the afternoon of November 14, 1874, while working as a mason, from a height of fifty or sixty feet, striking against the wooden scaffold once or twice in his fall. He was not unconscious, did not vomit, and was at once brought into the surgical clinic. On examination, the right thigh was found to be much swollen; the bone was apparently broken obliquely, just below the middle; the skin was uninjured. There was shortening to the extent of less than an inch, which was easily removed by simple extension. The limb was placed on a Petit's splint, reaching to the pelvis, and ice-bladders were applied to the thigh; the patient did not complain of any pain. On the chin there was a wound about an inch and a half long, at the bottom of which, for about three-fourths of an inch, the bone could be felt to be laid bare. The wound was washed with a 5 per cent. solution of carbolic acid, sewed with catgut sutures, and dressed antiseptically.

On the 15th I demonstrated the case in my clinic, calling attention to the absolute absence of any expressions of pain on the part of the patient, although the prognosis was quite favourable. The demonstration of abnormal mobility and of crepitation was most easily borne by the patient, although chloroform was not given. An extension-band of adhesive plaster was applied, the thigh fixed in three padded splints, one in front and two at the sides, and the patient was taken back to bed. In my clinical remarks I pointed out that the patient, having been previously free from fever, had this morning a temperature of 39.3° Cent. (102.74° Fahr.), and that in such severe injuries the prognosis must at first be very guarded, as possibly changes of internal organs might occur, which we could not diagnose.

At the evening visit, the patient did not complain of pain; but his pulse and respiration were rather quickened; temperature 39.7° Cent. (103.45° Fahr.). As he could not sleep in the evening, and was restless, a centigramme (.15 grain) of morphia was given to him at 9 o'clock; and, as this dose had no effect, the same quantity was given him shortly before midnight.

Some hours after midnight, the nurse, observing that his breathing was unusually loud and rattling, and finding that she could not rouse him, sent for the two clinical assistants, Dr. Berns and Dr. Deahna. The patient lay in a state of profound coma; his respiration was deep and frequent; the breath-sounds were masked by a loud coarse rhonchus; the stroke-sound was clear, with tympanic resonance. The pulse was 100, full and strong; the pupils were much contracted, and did not react; the face was cyanotic; reflex irritability was lost. Sinapisms, emetics (which were not properly swallowed) and friction with flannel, remained without

effect. Nor did any result follow venesection to nearly eleven ounces, which was performed on account of the cyanosis, with full pulse. His condition now became worse; he had convulsive twitchings of the upper limbs, profuse sweat, and tracheal râles; and died at 7.30, about thirty hours after the accident.

A necropsy was made on November 7, by Professor R. Maier. The body was strongly built. There was no exudation or extravasation in the peritoneal cavity. Both pleural cavities contained a small quantity of clear serum; on both sides were old circumscribed adhesions and thickenings, which had partly undergone watery infiltration. The pericardium contained clear serum. The lungs were voluminous; their surface was marbled, of a reddish white colour, covered with numerous bright red punctiform spots and streaks of the size of pin's heads, often confluent. Both lungs, especially the right, showed patches of a brown-red thickening, but were throughout pervious to air, a large quantity of froth and blood escaping on section. The left cavities of the heart were contracted, and the edge of the bicuspid valve was somewhat thickened. The muscular structure was brown-red, firm. The cavity contained a few masses of loosely coagulated dark blood. The right cavities contained a larger number of coagula, partly white, partly red. The arterial orifices were normal. The skull was thick and the dura mater tense; the longitudinal veins contained much fluid blood. On incision, some fluid escaped from the dura mater. The pia mater presented old thickenings; its vessels were very full, and in them were rather numerous ecchymoses of various sizes. The cerebral substance was firm, and presented numerous puncta vasculosa on section. In the cortical substance were small hæmorrhagic spots, rather numerous in some parts. The kidneys were brown-red, firm. The liver was of a clear brown colour. In the right thigh, the subcutaneous areolar tissue, from the hypogastric region to the knee, was filled with blood, and even the sheath of the ilio-psoas muscle was surrounded with dark masses of blood. The femoral artery and vein were uninjured; the muscles, as far as the point of fracture, were surrounded with extravasated blood. At the fractured part was a large extravasation, on which coagulated drops of fat floated in large quantity. The marrow, for about an inch and a-half above the fracture, was mixed with blood, and firm; and at a greater distance it was softer, and of a reddish-yellow colour. No further lesion was visible.

On microscopic examination, small portions of the lung-substance, removed by scissors from any part of the organ, showed that the smaller arteries and capillaries were filled with clear fluid fat. In many parts the vessels were completely inundated with fat, so that the fatty masses presented a complete injection of the pulmonary capillaries. I could ascertain no essential difference as regarded the fat, between the apex and the base, the surface or hilus of the lung. The fat was perhaps more abundant in the right lung than in the left; although even in the latter scarcely a small portion could be found in which some of the capillaries did not contain drops of fat. At many points, the deposits of fat could be traced into the arteries of the third size from the smallest. Both the microscopic appearance, and the circumstance that small portions of lung could be freed from the deposit by treatment with ether, proved that the embolic masses were fat. In the

alveoli lay detached epithelial cells, more rich in protoplasm and provided with more distinct nuclei than is generally found in the normal lung.

In the smaller branches of the pulmonary artery were found rather numerous coagula, which, after being washed with water, showed distinct drops of fat under the microscope. Fat drops were also found in blood removed from the femoral vein by means of a pipeter; while in the blood of the right ventricle only a few scattered drops were to be found. By the naked eye, fat could only be seen in the extravasation at the seat of fracture.

In the brain, a considerable number of branched embola were distinctly seen within the vessels, generally corresponding to the small ecchymosis.

In the kidneys the vessels of the cortical substance, and especially the glomeruli, were here and there distended with fat. In the liver, there were numerous drops of fat, about the size of blood-corpuscles, in the intra-lobular vessels. I did not see any fatty embola in the substance of the heart.

The fatty embolism of the lungs had reached so high a degree, that it must be regarded as a perfectly sufficient cause of death. It gave rise to disturbances in the pulmonary circulation, which produced œdema and poisoning with carbonic acid. How far the embola in other organs, especially the brain, may have contributed to hasten death, I cannot determine.

The reasons which led me to form the diagnosis of fatty embolism before the necropsy was made, were the following.

1. There were no evident symptoms of injury of internal organs. 2. I believed that shock must be excluded, since the current theories of shock are not in accordance with those cases in which the patients recover from the immediate effects of the violence, then fall into a state of collapse and die, without external cause, after twenty-four hours or more. 3. Poisoning with morphia could be safely excluded, as the first dose of one centigramme had no effect; and even the two doses, given with an interval of four hours, would be far from capable of producing fatal poisoning in a healthy man. There could have been no mistake on the part of the dispenser, as the remaining powders in the box were found to be correctly made up. 4. The symptoms which ushered in the death-agony were distinctly indicative of disturbances in the pulmonary circulation. Embolism by a detached venous thrombus could with presumptive certainty be excluded, as, according to the observations which we possess, its detachment would probably not take place before the eighth day. On the other hand, the experiments of F. Busch have shown that fatty embolism begins within the first few hours after injury of a bone. I could not understand the large full pulse, which appears to have been present until shortly before death; as a small arterial pulse would rather be expected as the result of disturbance in the pulmonary circulation. Perhaps an explanation is given by the experiments of Danilewsky (Pflüger's *Archiv*, Band ii.), who observed retardation of the pulse and increase of the blood-pressure after faradic irritation of portions of the brain; and we must look to the embola found on section of the brain for an explanation of this phenomenon.

These reasons, which I explained in my clinical remarks, make it probable that the first-mentioned case, that of R. W., was also one of fatty embolism.

The question now arises, whether fatty embolism can be detected during life, or, to speak more cor-

rectly, whether it can be predicted that life will be endangered by it. Unfortunately, clinical observations are as yet so scanty, that I must limit myself to merely indicating some points which demand special investigation in the future. In the first place, my patient had a high temperature— 102.74° Fahr. on the morning after the injury, and 103.45° the following evening. Lücke says, that his patient was brought into hospital in a febrile state. As, according to the researches of Bergmann, Stricker and Albert, and Billroth (*Archiv für Klinische Chirurgie*, Band xiii.) pulmonary embolism with chemically indifferent substance as a rule gives rise to fever, and as, according to E. Wagner and F. Busch, slight fatty embolism of the lungs very frequently occurs in cases of fracture, it might be assumed that the slight fever which generally accompanies simple fractures, depends perhaps on this embolism, and that a considerable increase of fever points to danger from this source. That impediment to respiration should be a hazardous symptom, is readily to be understood. Whether the small sensibility to pain during perfect consciousness, observed in my patient and in R. W., is to be regarded as a bad symptom of fatty embolism, I must leave to be determined hereafter by a larger series of observations. Perhaps this phenomenon may be explained, by assuming that the fatty embola in the cerebral vessels interfered with the functional activity of the brain.

As experimenters have hitherto had the clinical aspect of fatty embolism less in view than the anatomical, and the manner in which it occurs, I made some experiments in order to ascertain whether a certain series of symptoms from which the existence of fatty embolism might be inferred, could be observed in dogs. From what has been above said, it will be readily understood that the points to be specially observed were the temperature, the pulse, and respiration, and the reaction of the central nervous system.

As regards temperature, my expectation that a rise of temperature would be produced by fatty embolism of the lungs was not confirmed. In thirteen experiments, from half a drachm to an ounce of pure olive-oil or clear hog's lard were injected at a temperature from 86° to 104° Fahr. into the jugular veins of seven dogs. The injections were in general the more easily borne, the more slowly they were made, and the smaller the quantities injected. A strong hunting dog exceptionally bore repeated injections of five drachms of hog's lard, which were at once injected in a centripetal direction into the jugular vein; and on one occasion it could be concluded with certainty from the symptoms and the ophthalmoscopic appearances, that the fat had partly passed through the lungs and reached the central nervous systems.* So far as a conclusion can be drawn from

* As this experiment is of great interest on account of the embolic hæmorrhages in the retina, I will briefly relate it. Feldmann, a strong hound, had on January 23, 1875, at $3\frac{1}{2}$ P.M., a temperature of 39.4° Cent. (102.72°) in the rectum; respiration quiet, 36; pulse 132; fundus of the eye normal. At 4 P.M., twenty grammes (about five drachms) of hog's lard, at a temperature of 104° Fahr., were inserted into the jugular vein. Soon afterwards he barked violently, moved his fore-feet as if running, there were convulsive extensions of the back and hind feet, he discharged his feces and urine, and was unable to stand. The pulse was retarded; but could not be counted, on account of restlessness. The respiration was much accelerated. At 4.30 P.M., temperature 39.6° Cent. (103.28° Fahr.). The convulsive movements had ceased; the dog lay unconscious. Reflex irritability was present, but was not increased (it was so in some other experiments).—7 P.M. :

experiments on animals with regard to the condition in man, I must relinquish the opinion that a marked increase of temperature is characteristic of fatty embolism.

What may be the reason that lowering of temperature is produced by fatty embolism of the lungs, and raising of temperature as a rule by embolism with starch and powdered charcoal, I cannot determine. It might be thought that the supply of oxygen was diminished through the disturbances in the pulmonary circulation by embolism, and that therefore the oxidation processes in the body were arrested (Cohn, *Klinik des embolischen Gefasskrankheiten*, 1865); or that, through impediment to the circulation, the giving out of warmth to the air in the alveoli is hindered. A preponderance of one or the other factor might produce either lowering or raising of temperature. I therefore am not surprised that other experimenters here and there found a rise of temperature and altered fatty embolism of the lungs. Perhaps the more ready suggestion is, that, when fat is injected, embolism and disturbances of the circulation in the brain are generally produced, and that the regulation of heat is impaired, just as happens in morphia poisoning in the dog, which is often accompanied by a considerable fall of temperature.*

As in the few clinical observations on fatty embolism a rise of temperature was observed, I had still to inquire whether the high temperature did not perhaps favour the production of fatty embolism. But as the melting point of human fat lies between 35° and 43° Fahr., the slight increase of the body-temperature to fever-heat can scarcely assist the passage of fat into the vessels. Thus no conclusion can be drawn from experiments on animals as to a causal connection between fatty embolism and the rise of temperature in man; and the rise of temperature observed in man must have some other ground which does not stand in direct connection with fatty embolism.

temperature 37.5° Cent. (99.5° Fahr.). The dog ran with a tottering gait, and had taken food. The respiration was still quick. Pulse 140.—9 P.M.: temperature 37.7° Cent. (99.86° Fahr.).—January 24, 6.30 A.M.: Temperature 38.6° Cent. (101.48° Fahr.).—11 A.M.: temperature 38.3° Cent. (100.94° Fahr.). In the evening, the temperature was the same; he ate and ran well, but was still depressed. The respiration and pulse were somewhat quickened.—January 25: There was pneumonia of the right lung. The breathing and pulse were much accelerated. In the left eye, especially to the inner side and upwards, the ophthalmoscope showed numerous dark-red, generally round, hæmorrhagic spots with a lighter areola scattered in the retina, raised distinctly above the metallic green tapetum. Their size varied from being scarcely visible to the diameter of the papilla. In the right eye the blood-points were less numerous.—January 27: The hæmorrhage in the retina had become somewhat more extensive.—6 P.M.: temperature 39.4° Cent. (102.92° Fahr.); respiration 40; pulse 140. His general condition was improved.—January 30: The contour of the hæmorrhagic spots was less sharp. The dog appeared to be perfectly well.—February 25: Only very insignificant traces of the extravasation were left. The choroidal epithelium was not changed at these parts; and only a slight turbidity of the retina could be detected. The dog was in good health. In all my experiments, I have only seen these embolic hæmorrhages of the retina, but much less extensive, a second time in this same animal; while in the examination of animals which died of fatty embolism, similar hæmorrhages are often found in the brain, tissue of the heart, and lungs; and in their centre an obstructed vessel is generally easily found.

* In dogs narcotised by subcutaneous injections of morphia, I have repeatedly seen the temperature fall more than two degrees (3.6° Fahr.), and have found the pulse to fall to below fifty in the minute and become irregular, the respirations being slow.

The pulse was retarded soon after the injection, often irregular, and was frequently not again quickened until some hours afterwards.

The respiration was considerably changed by the injection. In general it was much quickened, irregular, and expiratory. After direct injection of fatty emulsion into the carotid, it was slow and stertorous. When large quantities of fat were injected into the jugular vein, death was produced by œdema of the lungs. The œdema was in many cases so severe, that fatty serum escaped in great quantity from the mouth and nose.*

The phenomena on the part of the central nervous system were various. In many cases the injections only produced some restlessness and quickened respiration. In others, there was considerable dyspnœa, there was great prostration, and at last the animals lay unconscious, and died with marked lowering of temperature. In others again, the injection was soon followed by clonic and tetanic convulsions, discharge of feces and urine, vomiting, paralysis, and coma. In the earlier cases, œdema of the lungs and poisoning with carbonic acid appeared to be the cause of death, while, in the later cases, death was directly caused by embolism of the brain. It is easily to be understood that the symptoms may vary according to the region of the brain in which the masses of fat are chiefly arrested.

As, according to these experiments on animals, the symptoms of fatty embolism may be very various, we must take a glance, in the diagnosis especially, at the conditions which may give rise to fatty embolism. It is observed after injuries, especially of bones, in acute and chronic suppurations, with or without metastatic abscesses, in Bright's disease (H. Müller, Lancereaux), in icterus gravis (Feltz), and in fatty degeneration of thrombi in the heart (Eberth). As far as I can see, it appears to be of essential importance clinically only in injuries of the bones, and perhaps in osteomyelitis. In cases of injury of bone, where, without apparent cause, a rapid deterioration of the patient's condition sets in during the first days, marked by disturbances in the circulation in the lungs and similarly in the systemic capillaries, fatty embolism must be borne in mind. But it can only be said to be a sufficient cause of death when the necropsy shows it to be so extensive as to affect such important organs (as the brain and tissue of the heart) that it must have produced considerable functional disturbance. The cases are, especially by English authors, reckoned among the deaths caused by shock; but, as I have already remarked, according to the present prevailing theory of shock, we must exclude all cases in which there is an interval of several hours between the receipt of the injury and the death-agony, in which the patient feels tolerably well. Perhaps many other cases of death belong to the category of fatty embolism, which it has been attempted to explain by the assumption of traumatic delirium or disturbance of the brain.

The mechanical conditions for the occurrence of fatty embolism have been well set forth by F. Busch.

* At first I thought that there was an increased secretion of saliva; but the fluid when collected was reddish, like water in which fresh meat had been washed, had a strongly alkaline reaction, and was nearly completely coagulated by the addition of nitric acid, or by boiling after acidulation with acetic acid. On examination, the bronchi were quite loaded with the same kind of fluid, while the salivary glands were dry.

Free fluid fat, arising in injuries of the bones from the crushed marrow, must be present somewhere in the body; and this is passed into the torn veins by the pressure of the arterial extravasation or of the muscles. That these favourable conditions for extreme fatty embolism fortunately do not often occur is easily intelligible; but slight fatty emboli are formed in almost every fracture of bone, and are evidently easily overcome.

It is a question whether we can do anything in the severe cases. As, according to C. O. Weber, the injection of fatty emulsion produces only slight effects, as fluid fat mixed with warm solution of carbonate of soda is readily changed into a fine emulsion by shaking, it might be thought that fatty emboli might be emulsified and rendered harmless by the injection of a soda solution. But the circumstance that this emulsion (one volume of fat and two volumes of a two-per-cent. solution of carbonate of soda) when injected into the carotid artery of a dog in a peripheric direction has caused death, even when used in small quantities, greatly lowered the expectation. In fact I have never succeeded, in my experiments, in overcoming severe dyspnoea by the injection of carbonate of soda into the jugular vein, although the distress several times appeared to me to be lessened for the moment.

Ligature of the veins absorbing the fat, which has been repeatedly done for the prevention of metastatic thrombosis in cases of venous thrombosis, is a proceeding that no surgeon would conclude to perform, even with all respect for the results of the antiseptic method; and no result can be expected from it, since the danger must always be recognised too late to cut off the source of the fat in this way. According to the researches of F. Busch, the fat is taken up in the first hours after the injury of the bone; while he also admits that its absorption may, under special conditions, occur later. Venesection for the purpose of relieving the venous congestion dependent on the disturbance of the circulation in the lungs, was, in our case at least, of no evident use.

ON THE SEMEIOLOGY OF CHILDREN'S DISEASES. BY DR. A. CUZZI, ASSISTANT IN THE CLINICAL DEPARTMENT OF THE OBSTETRIC INSTITUTION OF TURIN.*

(Concluded from page 609.)

Respiratory Apparatus.—This must be examined by inspection, auscultation, palpitation, and percussion.

1. *Inspection* gives the rhythm and the mode of respiration. Between the different acts which constitute a complete respiration, there are the same relations during sleep in the infant as in the adult; but, when it is awake, the rhythm is altered. The number of respirations during sleep is twenty-six (Vogel); in pulmonary and cardiac diseases, it may rise to seventy or even 100 in a minute. The number of respirations is, on the other hand, diminished in diseases which produce pressure on the encephalon (large tubercular masses, chronic hydrocephalus, etc.); the respiration is slow at first, but rapidly becomes quick and even sighing. The respiration is of the abdominal type, which is much exaggerated in pulmonary diseases.

2. *Auscultation* ought to be done quickly; immediate auscultation is preferable to the use of the stethoscope, so as not to frighten children with an instrument of which they cannot understand the harmlessness. Auscultation is difficult, because the infants sometimes refuse to be examined, and sometimes, when one has succeeded in applying the ear, they suspend or diminish the respiratory movements, and sometimes make irregular movements which alter the stethoscopic signs. Both sides of the chest should be examined, since disease at this early age is almost always bilateral, in order to be able to compare the intensity of the murmurs. Commence the examination at the base of the lungs in acute diseases, at the apex in chronic diseases.

Auscultation should precede percussion. In normal cases, we shall perceive the so-called puerile respiration of Laennec, due to the greater velocity with which air enters the pulmonary vesicles and to the thinness of the thoracic walls, which renders the sounds more distinct. According to some, however, the vesicular murmur remains weak up to the age of two years; it then increases because the lung becomes more permeable to air, giving rise to the stethoscopic sign described by Laennec. This respiratory murmur may be increased or diminished under the influence of various pathological conditions. All diseases which give rise to dyspnoea increase it; on the other hand, it is diminished in cases of pleuritic effusion. It is continuously diminished in true croup, because a smaller quantity of air passes through the larynx, the calibre of which is contracted by the false membranes. In false croup, on the other hand, it is heard commonly between the paroxysms. It is a valuable sign in the differential diagrams of these two diseases which are very often confounded.

The rhythm may be changed or perverted; thus, in severe pneumonia, we may see expiration more prolonged than inspiration. The respiration becomes harsh in the first stage of tuberculosis, but only in certain cases.

One of the most important signs revealed by auscultation is the bronchial or tubular souffle, which indicates condensation of the pulmonary parenchyma by pneumonia or by hydrothorax; with this difference, however, that in pneumonia the souffle is heard at the centre of the region of dulness, in hydrothorax above it.

I do not speak of cavernous râles, because generally in infants tuberculosis proves fatal before caverns have been formed. Diffuse râles, spread over the two sides, without great impediment of the respiration, indicate bronchial catarrh, which, if it be not at once treated, may give rise to true pneumonia. Remember that catarrh of the small bronchial tubes is as dangerous as pneumonia, through the smallness of the calibre of the air-passages, which may readily become obstructed, and give rise to collapse of the lungs. A true crepitant râle pathognomonic of pneumonia does not exist in the lobular variety, which is the most frequent. However, in the infant, pneumonia impresses such an appearance on the patient, that even an imperfectly practised eye will easily recognise this disease by simple inspection.

The best position for practising auscultation is to have the infant on the knees, or in the arms of the mother; and to apply the ear to the back covered only with a linen cloth, without its perceiving what is done; if the infant be very small it may be raised

* Concluding lecture of the Course of Obstetric Operations. (*Gazzetta delle Cliniche*, July 13, 20, and 27, 1875.)

with the hand and brought near the ear. It is sometimes convenient to make it cry in order to hear certain sounds which would otherwise escape the ear.

3. *Palpation* gives us not unimportant signs, and sometimes takes the place of auscultation. It gives us information regarding the vibrations of the thoracic walls under the influence of the voice, of cough, and of rhonchi, the manner in which they are produced during respiration, etc. The local resonance is best preserved at the anterior part of the chest, less at the hepatic and cardiac regions, and posteriorly between the scapulae.

4. *Percussion*.—The semeiotic value of percussion is much inferior to that of auscultation, and ought to be the last mode of examination practised. Direct percussion is to be preferred to that with the plessimeter, since the fingers are more easily fitted to the chest-wall, of which they also detect the degree of elasticity, which may be increased or diminished in different diseases.

In all cases, digital percussion should be practised with gentleness, during both inspiration and expiration, since some parts of the chest present different signs according to the stage of evolution of the lungs. Thus, for example, the thoracic viscera are carried downwards in inspiration, and the area of clear percussion-sound is increased; while during crying the abdominal viscera, and especially the liver, are thrust upwards, thus increasing the dullness.

Sonorousness is increased in emphysema (very rarely chronic in children), and in pneumothorax; on the other hand, it may be diminished or even abolished when the density of the lung is increased, in cases of pleural exudation, and in hypertrophy of the thymus gland.

To complete the study of the respiratory apparatus, we will add some remarks on the cry and on the cough.

The *cry*, in the first years of life, is the only word spoken; it may almost be called a function, since the *infant*, who *non fatetur*, expresses through it all its wants, its sensations, its pains. Percy and Billard have made a detailed and complete study of it. This sign is of especial interest to those who have to treat children. The cry is the most apparent expression of pleasure or of pain. It is produced in expiration; sometimes inspiration is accompanied by a more or less hoarse sound, which Billard calls *reprise*, due to the air rushing into the lungs after forced expiration, the glottis being still narrowed. There is, indeed, a vocal sound, a whistle during inspiration, in certain pathological states, as in Kopp's asthma or in croup. A cry of pain is not so much an indication of mental suffering as a check on the nervous apparatus (Moleschott). To produce a cry abdominal contraction is necessary; the glottis is contracted, the air is compressed in the chest, the pulmonary circulation is performed with greater difficulty, the blood is less oxygenated, the brain consequently receives imperfectly arterialised blood, and is less sensible of painful impressions; at the same time, there is arrest of blood in the veins, the face becomes livid and ingested, the infant, who appears threatened with suffocation, makes a slight inspiratory movement, giving rise to the *reprise*, and begins to cry again. Thus the intensity of the cry is, so to speak, the measure of the intensity of pain. We have here only to occupy ourselves with the infant's cry (*vagitus*); I leave aside the cry of the adult during surgical operations, and that of the partu-

rient woman. The first cry, in consequence of the effort which it demands, has very salutary results; it thrusts the abdominal viscera downwards, fully dilates the pulmonary vesicles, and unloads the fauces and larynx of the mucus which obstructs them. The physiological cry, which sometimes serves as a pulmonary gymnastic exercise, as the expression of some want, will be distinguished from the pathological cry by the resemblance of the latter to groaning or weeping, and by the alteration of the *timbre*. A strong and prolonged cry may, nevertheless, be perceived in robust children, the expression of severe pain or of intestinal colic; but it is not an indication for a guarded prognosis. In febrile diseases, the infant whines; the cry is weak or absent, or hoarse and peculiar in diseases of the larynx (simple laryngitis, croup, and diphtheria): an isolated cry at long intervals indicates hydrocephalus and meningitis; a single cry indicates an epileptic attack; multiple and disordered cries, hysteria; when the *reprise* only is heard, and the cry is suppressed, there is imperfect introduction of air into the chest, as in severe affections of the lungs and pleura. In proportion as the infant becomes weak, the intensity of the cry is diminished. Luton, in the *Dictionary of Medicine and Surgery*, edited by Jacoud, admits four principal kinds of cry: the cerebral; the thoracic (where the cry is suppressed and the *reprise* alone is heard); the laryngeal (hoarse or muffled); and the abdominal (strong, violent, indicative of colicky pains).

Cough is sometimes useful in the perception of the thoracic sounds in infants who breathe feebly; the ear should then be applied to the chest during a paroxysm of cough. We must, however, bear in mind that the stethoscopic sounds heard in this way are exaggerated. When the cough is easy and moist, there will be only bronchial catarrh; if it be interrupted and restrained by the infant, there is pneumonia; if it be continuous, and with very brief intervals, there is tuberculosis. Very small children do not know how to expectorate, and an abundant quantity of mucus may be arrested in the bronchial tubes and obstruct them so as to threaten suffocation. In these cases, nauseating expectorants are indicated, which, by provoking a violent contraction of the abdominal and respiratory muscles, freely expel the contents of the bronchi along with those of the stomach. Ipecacuanha is to be preferred, as its effects can be graduated, and it does not produce rapid and profound depression like tartrated antimony. At a more advanced stage, when the child can expectorate, examinations of the sputa may be of some advantage.

Digestive Apparatus.—This is to be examined in order, commencing with the mouth and proceeding downwards to the stomach and intestines. You know how the infant seizes the nipple in the physiological state; if it be strong it will seize it with force, and the sound of deglutition will be heard at a distance; if it be weak, it will suck with less energy. When an infant is feverish, the mouth is hot and there is much thirst; in cases of cerebral disease the breast is taken in an irregular manner; if the child do not take the nipple on account of want of strength, your prognosis must be very guarded. The quantity of milk which a good nurse is capable of furnishing in twenty-four hours amounts, according to Natalis Guillot, to 1,500 grammes ($3\frac{1}{2}$ pints), while an infant may take at each sucking from 80 to 200 grammes (about three to seven ounces). The age of the nurse

and of the child, and pathological influences, may cause great variations in the quantity of milk secreted, and also of that taken by the child. The infant should be suckled every two hours during the first months of life, and every three hours a little later; the intervals at night between the acts of sucking may be longer.

I have somewhat prolonged my remarks on these matters on account of their importance. In his treatise on obstetrics, Hubert has said that menstruation is the barometer of health in women; and in like manner we may say that the daily weight is the barometer of health in infants. If the child take the nipple, and after some efforts at sucking, leave it, and if the sound of deglutition be not heard, you should suspect that the nurse has not a large quantity of milk; and, in order to be better assured, examine the child after sucking. The milk may coagulate on the dorsum of the tongue, and present a certain resemblance to aphthæ; this is almost always coincident with fissures of the nipple. Sometimes small granulations are observed at the union of the bony with the soft palate, which in very young infants are often the starting-point of small ulcerations. The tonsils are more developed in early life, and inflammation more readily occurs in them. In the diagnosis of diphtheria, you will remember that herpetic angina will be sometimes confounded with it. When the inquiry into the causes of the deposit in the pillars of the fauces, and the concomitant phenomena, leave any doubt in your mind, act as if the diagnosis of diphtheria were certain.

Before proceeding to the examination of the stomach, never omit the state of the dentition.

You are aware that in infants the stomach has a more vertical direction, since the great *cul-de-sac* is less developed, and the small lobe of the liver almost entirely covers it. With these data, the examination of the symptoms which this organ furnishes will be more easy; they may be reduced to three—appetite, thirst, and vomiting. The appetite diminishes in febrile diseases, and increases more slowly during convalescence; the weight of the infant decreases in disease, especially of the digestive organs, and increases anew when convalescence is established.

Thirst is severe in febrile diseases; the mouth becomes hot and dry and the lips dry; this is perceived by the nurse when the child takes the breast. Vomiting is not always an indication for fear; if it occur a few minutes after the child has taken milk, without being accompanied by distortions of the face indicating pain, it depends on excessive distension of the stomach, or is the result of the child lying on the left side, so that the stomach is compressed by the liver, which is large at this time of life. Vomiting is of still less importance when the child continues to have a healthy appearance and to increase in weight. Greater importance, however, must be attached to vomiting if it occur half an hour or an hour after sucking, and if it be accompanied with painful contractions of the face; if there be also constipation, it is a sign of incipient meningitis.

Inspection, palpation, and percussion of the abdomen, and examination of the fæces, will afford us other diagnostic symptoms. Inspection reveals increase of size of the abdomen, which, even in the normal state, is larger than in the adult, in consequence of the greater proportional development of the abdominal viscera. Tympanitis, ascites, tubercular

mesenteric disease, hypertrophy of the liver, etc., distend the abdominal walls; cerebral diseases, meningitis, and progressive marasmus depress the belly. Palpation, by defining the limits of a tumour or the area of a viscus, or by provoking a pathological pain, and percussion, by indicating whether the contents of the abdomen are fluid or gaseous, will complete the results obtained by inspection. If there be no pathological pain, the abdomen can be compressed without provoking a cry; in ascites, it is best to practise palpation and percussion while the child is erect, in order to avoid the error in diagnosis which may arise from the fluid gravitating to the posterior part, while the intestines come into contact with the anterior abdominal wall. Be careful to examine the anal region; in cases of slight spasmodic diarrhœa there will not be the erythema characteristic of entero-colitis. If the infant do not allow you to examine it, being restless and agitated, use Valleix's artifice of taking it to an open window; the bright light astonishes it, and you must take advantage of this moment of calm to complete your examination.

Never omit the examination of the fæces; their colour, odour, density, constitution, and quantity, must all be passed in review. Two or three stools daily are normal in a sucking infant; one or two daily after weaning. The stools become more abundant, odorous, green, of less consistence, and contain masses of coagulated milk in inflammatory disease of the intestines. The coagula of milk in the fæces will be larger if the infant takes cow's milk.

Nervous System.—With a few words on the nervous system, I will conclude. I have already spoken of cerebral auscultation, and have pointed out some of the symptoms of disease of the encephalon in examining the various organs; I will, therefore, only mention that Bouchut has endeavoured to create a peculiar and quite new form of semeiology in these diseases by means of the ophthalmoscope. He sums up his researches in these three laws.

1. All diseases which retard the circulation in the cavernous sinus (tumours, inflammation, thrombosis in the sinuses) are manifested in the eye by lesions of the choroid, retina, and papilla.

2. Certain diseases of the brain and spinal cord, in consequence of the influence which they exercise on the trigeminal nerve, give rise to lesions in the retina and papilla analogous to those which are produced by section of the great sympathetic in the neck.

3. Disturbances of the nervous system attended with simultaneous change in the papilla and retina, indicate structural alteration in the cerebral matter.

These few remarks, gentleman, on infantile semeiotics, will, I hope, aid you in your examination of the general pathology of early infancy.

LABOULBÈNE ON THE SUCCUSSION-SOUND, OR HYDRO-AËRIAL BRUIT WITH METALLIC TONE, IN ABDOMINAL TUMOURS.

Amongst the original memoirs of the *Archives Générales de Médecine* for September, 1875, there is one by Dr. Laboulbène, physician to the Hôpital Necker, on the production of a succussion-sound in tumours of the abdomen; in continuation of a short communication to the Paris Academy of Medicine (Session of January 26, 1875, *Bulletin de l'Académie*, pp. 113-116), in which he mentioned having heard this sound in an abdominal tumour

a female patient. The patient having recovered, he endeavoured to determine the situation of the tumour (Session of August 3, *Bulletin*, p. 396). One of his pupils, M. Gaston Deny, has furnished a case of an encysted (probably ovarian) tumour with similar auscultatory phenomena—the details of which are given in this memoir, and are briefly as follows.

A washerwoman, aged fifty, was admitted an in-patient at the Hôpital Necker on November 6, 1875. Her father died of some stomach-affection at fifty-nine, her mother died at sixty-seven from a tumour in the left side of the abdomen, of about twelve years' duration. A sister, aged forty-seven, was also said to have had an abdominal tumour for fifteen years. She herself had had nine children, the first at seventeen, the last at thirty-six. She never miscarried. She married again two years ago, and from that time the catamenia had been irregular, and for the last six months she had never menstruated at all. From November last she had noticed a swelling in the left side. It had, however, never given her very much pain. She had not suffered from vomiting; but there was local tenderness. On admission, a tumour about the size of an adult head was felt in the left ovarian region and left flank. It could be moved from side to side without any abnormal sound. It was dull on percussion, and fluctuation was tolerably distinct. Fifteen days afterwards, the tumour was more prominent, the skin over it adherent, and slightly red at the most prominent part. There were dull pains. A sonorous sound was obtained by percussing the tumour; and, on seizing the mass with two hands and shaking it briskly, a splashing noise could be heard even at some distance, like that produced by shaking a water-bottle half or three quarters full of water. On applying the ear, and shaking briskly three or four times, this splash was very evident, and there was a metallic tone with it. On the 26th the tumour burst spontaneously, much fetid gas and greenish pus escaping, to the great relief of the patient. Only pus-corpuscles were found in this fluid. An India-rubber tube was placed in the opening, but on March 20 there was neither sinus nor tumour, except a hard lump of the size of a hen's egg, lying obliquely near the iliac spine. M. Depaul remarked, in the discussion on this case, that it was rare for simple cysts of the ovary to contract adhesions to the abdominal wall, or to terminate in abscess. He could not understand the formation of gas in a closed cavity. In a case of extra-uterine foetation, in which he had performed gastrotomy, and removed a dead foetus, he found adhesions between the cyst and the intestines, and a fistulous opening from the bowel, explaining the tympanic resonance of the tumour. In the case related above, he and M. Bernutz were at first inclined to consider the tumour malignant, because the uterus was much displaced, and its posterior lip ragged. M. Laboulbène believed that the gas produced in the cyst was from simple decomposition of its own contents, without any fistulous communication. He believed the tumour to have been an abscess close to the left ovary, situated between the posterior abdominal wall and the coils of intestines. The second case was that of a working woman, aged twenty-seven, who had always enjoyed good health, and had no family. In 1870, she noticed her abdomen enlarge. At the close of 1872, she was admitted to the Hôtel-Dieu, under M. Frémy's care, and was tapped six times in three months. The third, fourth,

and fifth tapplings were followed by injections of iodine. In January, 1873, she left the hospital pretty well, but was re-admitted in July, 1873, and again tapped and injected with iodine on the 17th. These measures were repeated in fifteen days (eighth tapping). All these tapplings were done with Castiaux's aspirator. The first time seven pints, afterwards from thirty-five ounces to about five pints of fluid were removed. She said it was always thick, and the last time of a dirty grey colour. In August, 1874, she was again twice tapped. In October, 1874, she was under the care of M. Péan at the Hôpital Saint-Louis. A tumour was found occupying the whole of the left abdomen as high as the umbilicus; it was freely movable, dull on percussion, and obscurely fluctuating. Its surface was unequal. A multilocular tumour of the ovary was diagnosed at this hospital, as well as at the Hôtel-Dieu. A few days after admission to M. Péan's wards, she was attacked with phlegmonous oedema of the legs, which did not yield to treatment. On November 15, the tumour, increased in size, was found sonorous on percussion; and on giving it little quick jerks towards the pelvis, there could be plainly heard, even at some distance, a splash, or hydro-aërial bruit, just like the Hippocratic succussion-sound of hydro-pneumothorax. On applying the ear, this sound was found to be distinctly metallic ('bruit d'airain,' brass-like in tone). She died a few days afterwards, but this phenomenon could be easily produced as long as she lived. No *post mortem* examination was allowed.

Did the gas proceed from the decomposition of the fluid itself in this case? M. Laboulbène thinks this probable. M. Hérard has published a memoir on the spontaneous formation of gases in closed cavities (*Actes de la Société Médicale des Hôpitaux de Paris*, 2^e fascic. pp. 105-112), and this contains three remarkable observations: (1) of empyema, with pneumothorax without perforation of the lung, in a man aged thirty-three years; (2) of enormous dilatation of the left kidney, and admixture of gas and pus without any communication with the external air, in a woman aged thirty-nine years; (3) of a suppurating ovarian cyst, with mixed pus and gas, not derived from without, in a woman aged twenty-five years. This observation was followed by a necropsy. MM. Barth and Roger both heard the succussion-sound in this case (*Traité pratique d'Auscultation*, etc., 8^e ed. p. 527. 1874). See a discussion on this subject in the *Bulletin de la Soc. Méd. des Hôpitaux de Paris*, tome i. p. 186-188; and another case of hydro-pneumothorax without perforation of lung (in the same volume, p. 289); also a case of Demarquay's, in which gas and matter escaped from puncturing an ovarian cyst for the first time (*Bulletin de la Société de Chirurgie de Paris*, 2^e Série, tome x. Dec. 8, 1869; *Bulletin Général de Thérapeutique*, tome lxxviii. p. 86, 1870.) Demarquay, in his *Pneumatologie Médicale, Recherches Physiologiques, Cliniques, et Thérapeutiques sur les Gaz*, p. 104 (1866), discusses the same subject. Scanzoni gives a case of spontaneous formation of gas in a cyst (*Traité pratique des Organes Sexuels de la Femme*, French translation, p. 372, ed. 1858). Neither Spencer Wells, nor Bernutz, Courty, or Puech give any examples of it. Scanzoni (*loc. cit.* p. 373) says 'that in large ovarian cysts one often hears a *bruit de glou-glou*.' M. Gosselin has given an example of an abdominal abscess (terminating in recovery, with a faecal fistula), which furnished this splashing sensation when rather suddenly and sharply compressed.

It was resonant on percussion. M. Roux opened it, and let out a quantity of gas and pus. M. Laboulbène concludes that this succussion-sound may be heard over abdominal tumours of various kinds, and that it does not necessarily indicate any communication with the external air, or with the intestines.

W. BATHURST WOODMAN.

COMBAL AND CHALOT ON A CASE OF DOUBLE HYDRONEPHROSIS IN AN ADULT, FROM OBSTRUCTION OF THE BLADDER BY FOUR CALCULI.

The *Montpellier Medical* of July 18, 1875, contains a long and minute account of the following case, with a copious bibliography. The patient, whose name was André Delon, aged fifty-seven years, was admitted on April 18, 1875, about 3 P.M., into the Saint-Vincent ward of the Montpellier Hospital, under the care of Professor Combal. He had been a railway superintendent, and had been twice married. Born at Nîmes, he had resided chiefly at Alais. On admission, he was noticed to be in great agony. There was orthopnoea, and his chest was alternately raised and depressed with great rapidity. The face had a dirty yellow colour, and the eyeballs were somewhat prominent. His appearance suggested cardiac disease of malarial origin. His wife, however, stated that he had never had any febrile attacks, but that for some days past he had complained of a sharp pain in the left side of the chest; and for as much as nine years past of a dull dragging pain in the lumbar region; further, that for some weeks he had passed no urine, only flocculent, greyish white masses like chalk and water. Thus attention was directed to the lungs and urinary organs. His chest was barrel-shaped. On each side of the sternum in front there was diminished tactile vocal fremitus; these portions were abnormally resonant. There was slight dulness on percussion at the lower and inferior part of the left lung, with broncho-ægophony at the same part; elsewhere compensatory respiration. He had occasionally a dry cough, and for three or four days his sputa were blood-stained. He was much depressed, but his temperature was only 38.4° Cent. (101.1° Fahr.). These physical signs of a pleuro-pneumonia of low type were justly said by M. Combal to fail in explaining the gravity of his general condition—his intense dyspnoea and debility, his anxious and restless expression, severe general headache, absolute want of appetite, mucous vomiting, hiccough of four months' duration, flatulence without diarrhoea, swelling at night of the backs of his hands, and of the ankles, wandering pains in the joints, most marked in the left knee. These symptoms pointed to the urinary organs. He had in fact come to the hospital to be cut for stone by Professor Courty, who transferred the case on account of the urgent dyspnoea. In the hypogastric region there was neither tumour nor dulness above the pubes. An elastic catheter met with obstruction from a hard body at the neck of the bladder. This obstacle could not be forced, even with a silver catheter. A rectal examination showed that there were several stones. The prostate was small for his age. The penis was very short, the testes like those of a boy of twelve. Coitus had long been impossible. As the bladder seemed spasmodically contracted, the lumbar regions were examined. There was no unusual bulging either before or behind; but in the lumbar region there was extreme tenderness on pressure. On percussion there

was neither fluctuation nor much dulness; finally, on auscultation with succussion, no typical urinary splash ('clapotement rénal proprement dit'). Indeed, except the pain and tenderness in the loins, there were no renal symptoms. The difficulties of diagnosis were therefore great. There were the absence of urine in the bladder, the presence of calculi, and the peculiar dyspnoea, which might be uræmic. It was said, too, that he had had sudden and shifting pains in the back and loins for some years, and had often been obliged to keep his right hand pressed against his loins in walking. His pulse was now only forty-eight; the pupils dilated and insensible to light. He appeared to see things through a mist; was increasingly deaf, and grew more and more stupid; in fact, had symptoms of chronic uræmia. Two blisters were applied, one to the chest, the other to the top of the right thigh; and the following mixtures were ordered: R. Hoffman's liquor, and tincture of benzoin, of each twenty drops; syrup of Tolu, one ounce; orange-flower water, and linden-water, of each equal parts to make a four-ounce mixture. A tablespoonful to be taken every hour; and in the intervals an antimonial linctus. He was ordered veal-broth and wine; with orange-leaf tea. The catheter was ordered to be used night and morning. Towards night he had monotonous delirium with sighs and groans, and was somewhat comatose. The coma deepened in the morning, and he died at 11 A.M. [twenty hours after admission].

Only a partial *post mortem* examination was permitted. The bladder was found somewhat on the left side, and had the form of a lozenge with blunted angles. It only extended about $1\frac{3}{8}$ inches above the pubes, and the parietal peritoneum covered this entirely. On examining the bladder, four stones about the size of chestnuts were found, corresponding to the four blunt angles of the lozenge. These and the bladder together weighed $10\frac{1}{2}$ ounces troy, including the prostate and the fluid contents. On opening the bladder carefully, the four stones appeared as four bodies rounded on their borders, and with two smooth lateral facettes corresponding to the lateral surfaces of the bladder. All together, they formed a quadrilateral figure. The first or uppermost calculus was greyish-white, of chalky consistence, ellipsoidal, slightly irregular on the surface, except the two facettes, which were polished like the finest marble. The second stone was cuboidal with blunt angles, slightly narrowed about the middle of its longest diameter. The third stone, situated posteriorly, resembled it, as did the fourth, situated obliquely in front, but posterior to the level of the neck of the bladder, except that these were not pinched in any of their diameters. The following are the chief dimensions of these stones.

The first stone weighed 587 grains. Its long diameter was two inches. Its short axis at the larger end was $1\frac{7}{16}$ inch; the other short axis was $1\frac{1}{4}$ inch. Its greatest circumference was $4\frac{3}{4}$ inches; circumference at larger end, 4 inches; at smaller, $3\frac{1}{4}$ inches. The second stone weighed 572 grains. Its long diameter was $1\frac{7}{8}$ inch, its short one $1\frac{3}{8}$ inch; its greater diameter $5\frac{1}{8}$ inches, its lesser $3\frac{7}{16}$ inches. The third calculus weighed 756 grains. Its long axis was $1\frac{3}{4}$ inches, its lesser $1\frac{1}{16}$ inches. Its larger circumference $5\frac{1}{4}$ inches, its lesser $3\frac{7}{16}$ inches. The fourth weighed 710 grains. Its long axis was $1\frac{3}{4}$ inches, its short one $1\frac{1}{16}$ inches, its greater circumference $5\frac{1}{4}$ inches, its lesser $3\frac{3}{4}$ inches. The first and third calculi were cut transversely, and showed a nucleus

of rusty yellow, composed of uric acid and cystine combined; outside this a brownish circle of porous matter, consisting of thickened mucus; beyond this a larger greyish-white mass, bordered by a clear brown, of oxalate of lime, then stratified layers of carbonate and phosphate of lime; outside all there was again a layer of mucus. The bladder contained some minute lithic concretions, and between the four stones a quantity of soft chalky matter, of phosphate and carbonate of lime. Both ureters were obstructed by the same (fourth) calculus.

The right side of the bladder was atrophied; the left had the muscular fibres and mucous membrane hypertrophied. The prostate 'cried under the knife,' was firm, leathery, small, and contained few blood-vessels. The middle lobe was slightly prominent at the neck of the bladder, probably from congestion chiefly. An enormous mass of fatty tissue, a true capsular lipoma (Virchow) enveloped both kidneys. They were separated from the intestines by the thinnest of serous membranes. The left kidney was double the ordinary size, with rounded and breast-like projections. It was mainly divided into three portions corresponding to the antero-superior, middle, and inferior portions of the kidney; the middle was the smallest. The measurements were—length, 7 inches, diameters of each principal pouch, $3\frac{3}{8}$, $2\frac{5}{8}$, $2\frac{1}{2}$ inches; medium thickness $3\frac{3}{8}$ inches; weight, with liquid contents and pelvis, 16 ounces nearly. The urine itself, slightly albuminous, and containing free fat, weighed 10 ounces. The whole of the interior of this kidney was lined by a membrane like that described by Rayer. The left ureter was converted into a cord for two inches of its length at the vesical end. The pelvis and upper end of the ureter were much dilated. The right kidney was somewhat smaller, and divided into four principal pouches. Its true structure was still more atrophied than that of the left—the whole of its wall being only about one-fifth of an inch in thickness. Its contents amounted to eight ounces; its own weight, with the pelvis, was only about three ounces. It was six inches long, three wide, two and seven-eighths thick. A minute description is given of both kidneys, for which we must refer to the original. The liver was somewhat cirrhotic, the spleen small. Nothing else abnormal was noted in the abdomen. Further examination of the body was forbidden.

In commenting on this case M. Chalot points out the distinctions from cystic disease of kidneys, and observes that hydronephrosis is most common in the fœtus, and may even be a cause of dystocia. He refers to cases by Rayer, Mansa (1836), Oesterlen (1841), Horing, Gailleton, and Ollier (*Gazette Médicale de Lyon*, 1853), Virchow, Siebold (1855), Chevance (*Union Médicale*, 1857), Chevandîé, Levi (*Gazette Hebdomadaire*, 1857), and others. In the adult, cases have been observed by Virchow, Rayer, Lebert (*Traité d'Anatomie Pathologique*, tome ii.), by Hirtz and by Jaccoud. [Dr. Little's case at the London Hospital was in a young lad, but the obstruction was probably congenital.—*Rep.*] Any obstacle to the flow of urine may cause hydronephrosis. It may be single or double, general or partial, simultaneous or successive, according to the site of the obstructions, etc.

The direct or occasional causes are either (1) those of the cavity or calyces, as calculi depending on clots of blood, hydatids, mucous coagula, foreign bodies, fibrinous concretions and the like; or (2) parietal, including most of the malformations and

congenital cases, strictures, folds of membrane, etc.; or (3) peripheral, such as those produced by external pressure of tumours, the gravid uterus, Pott's abscess, etc., ovarian disease, or prolapse of the uterus [cases by Rayer, Stadfeld, Virchow, Laboulbène, the last read before the Société de Biologie in 1850; Bourdillat, 1868]; aneurism, cancer of the rectum, etc. Chronic pyelitis must also be mentioned as a cause (Moreau and Vigla, 1868). Whenever hydronephrosis is unilateral (simple hydronephrosis of Rayer) the other kidney becomes congested and hypertrophied, to supply the lack of its fellow. A great number of unilateral cases are on record, such as Bonet's (1679); one in the *Journal des Savants* (1698), Morgagni's (1760), Van Döveren (1763), Haller (1777), Sandifort (1782), Walther (1789); others by Hoffmann, the first to diagnose the disease in life; Ruysch, Rudolphi, Frank, Chopart, and more recently Howship, Howison; the *Journal de Médecine* of Corvisart, Leroux, Boyer, König, Reynaud, Piorry, Glass, Rayer (*Obs.* ii., iii., tom. 3), Cruveilhier, Th. O. Heusinger, 1862, Zambaco (v. Lebert, tom. ii., pl. cxxxviii., *Traité d'Anatomie Pathologique*). Sestîé described a case from vegetations of the right ureter. In 1868, Bourdillat, for Demarquay, one on the left side from uterine cancer. Broca (in 1851) had a case from a valve-like disposition of the opening from the kidney into the ureter. Virchow has noted cases in which, although the ureter was permeable, there was extreme hydronephrosis. Here again the valve-like disposition of the superior insertion of the ureter was to blame. In 1869 Heller noted a case of partial hydronephrosis, in which there were two ureters to one kidney. The segment corresponding to the lower ureter had become distended. Rare in men, this has more often been noted in the ox. Potain and Choyau's lumbar tumour (*Thèse de Moreau*, 1868) may have been a cyst of another kind. Hydronephrosis is more common in females than in the male sex. Double hydronephrosis is very rare. Ruysch observed it in a sheep, Billard (*Traité des Maladies des Nouveau-nés*), Moreau (*Bulletin de l'Académie de Médecine*), and Cruveilhier have noted it in the newly born. One female infant lived thirty hours. P. Jalon quotes a case in a boy of ten years; Hallé in a female aged forty, consecutive to renal calculi. The *Histoire de la Société royale de Médecine* (1780-81) has an account of one in a female aged forty. Rayer describes one in a lad aged seventeen (in 1836). W. Roberts (*Brit. Med. Journal*, 1868), and Prompt describe each one. Bourdillat, in 1868, gave the history of a case of double hydronephrosis in a man aged fifty-six, who had in his bladder a stone weighing nearly six ounces (180 grammes). He was cut by Demarquay and Ségalas above the pubes, but died three days afterwards. Like the case recorded above, he only passed a drop or two of urine for some weeks, according to his wife's statement. There were also other points of resemblance in the two cases.

Is it possible to live after all trace of true kidney structure has been destroyed? We have no materials for an answer in the adult. But the infant cited by Moreau survived its birth thirty hours, in spite of complete destruction by ectasis of both kidneys. Instead, therefore, of saying with Rayer, 'an infant born with double hydronephrosis is not viable,' we should say, 'cannot live long.' This complete case is analogous to extirpation or congenital absence of both kidneys. Pigné, in the *Bulletin de la Société Anatomique de Paris*, speaks of complete absence of

both kidneys in a fœtus at full term. Moulon, of Trieste, made the same observation on a girl fourteen years old. Comhaire had many dogs live three days after extirpation of both kidneys. After their extirpation, or after ligation of both renal arteries, Prévost and Dumas, Legallois and Bernard found that the animals did not die very quickly. The indications for treatment in hydronephrosis once diagnosed must be to remove the cause, if possible, and to empty the tumour by paracentesis (König, Little, and others), or to do nephrotomy (Hillier and Thompson) at the posterior part of the eleventh intercostal space, or manipulations of different kinds as proposed by W. Roberts. Infiltration of urine can scarcely happen if care be taken that the varied tissues are all perforated in parallel planes. Rayer, Rosenstein, and Lécorché have given excellent recommendations as to therapeutics in these cases. The diagnosis is difficult, since the slow progress and the urinary fluid are no longer deemed unequivocal symptoms (Rayer, Krause, Rose). Hydronephrosis has been taken for a gravid uterus (*Histoire de l'Académie des Sciences*, 1732), for ileus (Howison), for splenic tumour (Virchow), for ovarian dropsy (Johnson, Virchow), and for ascites. The celebrated ovariologist, Spencer Wells, was misled for a moment by the tradition (handed down by Rostan) that the bowels float in front, if the tumour be renal, and behind and above when the tumour is ovarian. A natural cure by formation of a fistulous opening is so rare that Rayer had never heard of a case. [A supplemental bibliography of recent cases is added, for which reference must be made to the original. A case has recently been under treatment, with favourable results, at the Southampton Infirmary. It is much to be wished that the details were communicated to the profession.—*Rep.*]

W. BATHURST WOODMAN.

ANATOMY AND PHYSIOLOGY.

O'CONNOR ON CLIMACTERIC CHANGE.—In the *Dublin Journal of Medical Science* for July, is an article on climacteric change, by Dr. O'Connor, read before the Cork Medico-Chirurgical Society. In it he says:

The term 'climacteric,' as applied to certain periods of life at which sudden changes in health, either favourable or unfavourable, occur, without any assignable cause, is seldom found in medical writings at the present day. It is, perhaps, too much the custom to disregard the consideration of diseases not founded on known pathological changes, many of which are found in the old nosological works on medicine. We recognise disturbances in the system at the periods of dentition and puberty, and at the cessation of menstruation, which test the stability of the constitution. Might we not expect, *à priori*, that the decline of life, like its development, may proceed, not at a uniform rate, but arrested or precipitated at certain stages, which are called climacteric? Sir Henry Hallford, and one or two other writers, have endeavoured, apparently in vain, to revive the consideration of this subject. No doubt, it is not so easy to observe with precision changes in the late period of life as in the early, owing to the many artificial disturbing elements in the course of life in the latter, when free-will gives free play to the passions, and care, grief, or anxiety, may obscure the

milder action of natural changes, which is hard to eliminate from the more powerful agencies with which it is associated. Nevertheless, any physician in much practice must have seen many a person about the age of sixty-three, the great climacteric, falling away from health, without being able to find any assignable cause on the most careful inquiry. His friends notice a great change in his appearance, and believe he is approaching his end; and soon afterwards the same individual is seen in full vigour—regretting, perhaps, that in his previous despondency he had given up his business, or the practice of his profession, for which he now feels himself equal. A characteristic of this condition is a gloomy foreboding of poverty, without grounds, or extravagant grief carried beyond the ordinary bounds. If the patient be well guided, and if organic disease do not establish itself during the stage of debility, a reaction takes place, which establishes the health on a firm basis. Strange stories are told of white hair becoming again dark, of new sets of teeth springing up in old sockets, of sight so improved that spectacles are no longer needed. I will bring under the notice of the society a few cases less striking than these asserted facts. A gentleman, very delicate all his life, had a considerable discharge of blood from his stomach, about sixty years of age, and continued many months apparently approaching his end. He rallied into health suddenly, and now, at the age of eighty-five, goes to mass at half-past seven o'clock every morning, and never uses spectacles when reading.

An old lady, who died only recently at the age of ninety, assured me she had very poor health till she had passed sixty years of age.

The following case I give in the words of the patient himself, a physician. 'When I was about sixty-three years of age, I felt an unaccountable languor and a debility in walking. In ascending a hill, or going upstairs, the muscles of the thighs and legs were as painful as if they were in a state of inflammation. All candid people who met me said I was very much changed in my features; that I must have been ill; that I should eat more and work less. Though my sincere friends were more delicate in their remarks, I could see from their countenances that they had much anxiety about my condition. On rubbing my hand over my face I found it rough, as if grains of sand were embedded in it. My nights were miserable, being constantly visited by nightmares of an uniform character—always feeling myself in some exposed place, lying in a state of utter prostration, unable to move. These dreams, I believe, were produced by a weakness of the heart's action—a sort of fainting in sleep. I never have had similar since or before. In the month of November the tops of the fingers of one hand were slightly scorched by handling a hot object. The charred cuticle was unremoved until the following June. The feet and hands were always cold. My voice became husky, not through a cold or inflammation, but nervous debility, and speaking or reading aloud distressed me much. I felt no symptom of illness, except a general languor, in which the pulse partook. The urine was normal. When I had been in this state several months I visited a medical friend in Dublin, being on my way to the Continent, not intending my visit to be professional. He expressed surprise at my changed appearance, and asked, with more frankness than was pleasant, whether I had any hæmorrhage from the bowels, kidneys, or lungs; whether my legs were swelled;

whether I had syncope. Being answered in the negative, and finding, on examination, my heart was weak, but not unsound, he said with some satisfaction, and, as the result proved, with truth, 'Then your disease is sixty-three.' Having spent a month on the Continent, not submitting to any efficient treatment, I soon became thoroughly well, with a degree of sound health which I did not enjoy for years previously. The roughness was removed from my face; the cuticle on my fingers was renewed; some scaly exudations on other parts of the body fell off; my voice was restored. It appeared to me as if the nutritive changes had ceased during the period I have referred to, and the tone of every bodily organ was temporarily depressed.'

From the reaction towards perfect health which took place in this and similar cases, it is evident the early symptoms did not depend on any structural changes in the arterial system which arise in advanced life; still the lowered state of the vital power makes it a favourable opportunity for the invasion of organic disease, to avert which should occupy the care of the physician, by prescribing such regimen and laying down such rules of life as would increase nutrition, diminish waste, and prevent mental shocks; and by these means give a new term of life, however short.

HUIZINGA ON THE INNERVATION OF THE VESSELS OF THE WEB OF THE FROG'S FOOT.—D. Huizinga (*Pflüger's Archiv*, xi. 207), in his paper, confirms the results of Goltz, Tarchanoff, Putzeys, etc. As is well known, the doctrine of the innervation of vessels has undergone remarkable changes within even a short period. At first it was a tolerably simple affair, so long as it was imagined that the vaso-motor centre for the entire body lay in the medulla oblongata, and that the vaso-motor fibres were distributed in all directions through the sympathetic. Later discoveries have, however, necessitated changes in this relatively simple theory. First there were the vaso-dilator nerves; then the vascular reflex action upon sensory stimulation; then facts that seemed to show that the vaso-motor centres are distributed throughout the whole spinal cord; and, lastly, the view, supported on more or less good grounds, that the lumen of the vessel does not depend upon spinal nerve-cells alone, but is also controlled by peripherally situated nerve-cells.

The author's experiments were made upon the web of freshly caught strong examples of *Rana temporaria*, which is preferable because it contains fewer pigment-cells to obstruct the view of the vessels. The animals were curarised with a solution of curara, which took twenty to thirty minutes to operate. Sometimes, though rarely, a solution of strychnine was employed to increase the reflex activity; and in an animal previously curarised, a larger dose of strychnine was required to produce the result. The size of the arteries was measured either by an eyepiece micrometer, or the size of the vessels was drawn by means of a camera lucida. The animals must not be too strongly curarised, else the rhythmical movements normally to be observed in the arteries are not to be observed, although the vaso-motor nerves retain their excitability undiminished.

In order to test the independence of the rhythmical contractions in the arteries of the spinal vaso-motor centres, the sciatic plexus and, for greater security, the sciatic nerve on one side were divided,

or even a part of the nerves excised, and the animal left to itself for one or two days to recover from the effects of the operation.

In the web of the foot so operated on, the most beautiful rhythmical contractions are to be observed, whilst the reflex contraction, on pinching the fore-foot, is entirely absent, thus showing that the contraction is completely abolished with the destruction of the spinal centres. On the uninjured side the reflex movements occurred. Further, this experiment shows that the rhythmical movements of the vessels do not proceed from the spinal cord, confirming the results of Gunning on the web of the frog's foot, of Roeber on the ear of the rabbit, and of Asp on the splanchnics. In addition, the rhythmical contractions do not occur in all the arteries of the web simultaneously. The author is, therefore, of the opinion, like Lister, Goltz, Tarchanoff, Putzeys, that the cause of these movements is to be sought for in local nerve-centres, leaving it, however, undecided whether the impulse for these movements proceeds from peripheral nerve-cells placed along the vessels, or arises independently of such organs in the muscles of the vessels.

Beyond the rhythmical movements, very pronounced reflex movements of the muscles of the vessels are to be observed. The author finds that when stimuli (mechanical or electrical) are applied to the skin, whether the application be followed by contraction or dilatation of the arteries of the web depends, on the one hand, on the distance of the stimulated area from the web, and, on the other, on the intensity of the stimulation; so that with diminishing distance and increasing strength of stimulus dilatation prevails.

In an experiment on a frog whose lumbar portion of the spinal cord was destroyed the day previous, the author observed that a reflex contraction which occurred on stimulating the fore foot was entirely abolished, when the sympathetic nerve accompanying the aorta was divided between the third and fourth ganglia.

In a frog whose spinal cord was destroyed the day previous from below the fourth vertebra, no reflex contraction of the vessels was produced on pinching the posterior extremity, though this result followed pronouncedly when the anterior extremity was pinched. A weak solution of amyl-nitrite, suspended in water and applied to the web of the foot, was followed at once by dilatation in the vessels of the web, which reached its maximum in a few seconds, and lasted for ten to twenty minutes. The vessels then returned to their normal calibre. At the maximum of dilatation, pinching the fore foot was followed by a normal reflex contraction of the vessels of the web.

From this experiment the author draws the following conclusions.

(a) Amyl-nitrite does not paralyse the muscular tonus of the vessels.

(b) Neither does it paralyse the vaso-motor nerves, nor their end-organs.

(c) The dilatation of the vessels after the application of amyl-nitrite cannot otherwise be explained than that this substance extinguishes the tonus of the peripheral nerve-cells (the so-called local vaso-motor centres) placed along the vessels.

ROSSBACH ON THE RHYTHM OF THE HEART-BEATS.—M. J. Rossbach (*Ber. d. Sächs. Ges. d. Wissensch.*, 1874, 193, and *Centralblatt*, no. 28, 1875) investigated first the influence of the systolic cardiac pressure on the formation of groups of beats.

Luciani found that a considerable and continued increase of the pressure which the heart had to sustain during the diastole accelerated the occurrence of fatigue, and rendered the pulse curve irregular; as to the influence of the systolic pressure he obtained no results. Rossbach, instead of a mercury, employed a water manometer. The systolic pressure could be diminished or increased by leaving the free end of the manometer open, or by compressing it more or less. In hearts which were fed with clear rabbit's serum, the formation of groups occurred both with high and low pressure; but with low systolic pressure the formation of beats was much more irregular than with very great pressure. These irregular groups passed at once into regular ones, when the systolic pressure had diminished. By the term 'heart' is meant one whose auricles are ligatured off after the manner of Luciani.

On using serum as free from corpuscles as possible for filling the heart, the formation of groups occur in a pronounced manner; the groups disappear when the pure serum is removed and defibrinated blood or blood serum is employed instead. Also when the heart is filled with a 0.6 per cent. solution of common salt, the grouped arrangement of the beats disappears. If the heart be filled with very red serum or defibrinated blood, it never shows a trace of grouped arrangement of its beats. If the defibrinated blood, without renewing it, be allowed to remain in the heart till it has lost its red colour, the formation of groups begins again, and in such a heart the periodic rhythm cannot again be brought to disappear by repeated filling with fresh blood or blood serum. A heart filled with blood, and beating and acting regularly, at once forms groups on a weak solution of veratrin being added to its contents. The different conditions in the succession of beats can be produced in one and the same heart. If a heart be filled with solution of salt, its beats follow each other at always regular intervals; if this solution be exchanged for pure serum, the contractions arrange themselves in groups; and if this solution be in turn displaced by serum containing blood-corpuscles, the heart then acts again with a regular succession of beats. The number of beats, however, is not always the same. A heart filled with solution of salt beat six times per minute, with pure serum in the first group seven, in the second ten times, with blood on the contrary twenty-three times. Rossbach cites various explanations for these different actions, and for the phenomena of the periods. It is possible that in pure serum a substance is formed, which on the one hand has an influence similar to veratrin, and on the other is destroyed when it comes into contact with bright red blood-corpuscles; or serum acts as a stimulus; under its influence the energy of the conditions under which the grouped arrangement of the beats is active becomes greater, and then diminishes to the stage of the so-called 'crisis,' during which the heart-beats occur in regular but slower succession. Blood, however, is able to stimulate an excitable heart more strongly than serum, and causes the pauses to disappear, whilst solution of salt stimulates less than the serum, so that by its presence the heart, from the first, passes into a state which corresponds to the stage of 'crisis' in the serum-heart. The similarity in the action of blood and of salt solution, are therefore only apparent. In the course of his investigations, Rossbach often succeeded in restoring apparently dead hearts by increased diastolic pressure and by heating.

HARNACK ON THE ACTION OF EMETICS ON THE TRANSVERSELY STRIPED MUSCULAR FIBRES.—E. Harnack (*Archiv für Experiment. Pathologie*, iii. 44, and *Centralblatt*, no. 35, 1875) remarks that a large number of the substances which act as emetics and nauseants have also a paralysing action upon the voluntary muscles. To this group belong emetin, apomorphia, tartar-emetic, cyclamin, asclepiadin, and sanguinarin, delphinin, veratrin, and digitalin. The author tested the copper and zinc salts, and some drugs obtained from the vegetable kingdom.

We have very few experimental results on the action of the copper salts. To avoid local disturbances by the substance, and specially to avoid coagulation of the albumen, the author chose for his experiments a soda double salt, viz., tartarate of cupric oxide and soda. In the frog, copper acts eminently in paralysing the voluntary muscles. A quantity of the solution of the copper salt, which contained half to one milligramme of copper oxide injected subcutaneously into a frog, produced, after a few hours, complete paralysis, and with 3 milligrammes of oxide of copper the same result after one hour. In rabbits 0.05 gramme of oxide of copper injected subcutaneously, or 0.01 to 0.15 into the veins caused death, with the phenomena of paralysis of the heart and respiration; in the former case, after a few hours, in the latter, after a few minutes. The voluntary muscles, specially those of the posterior extremities, lose their excitability completely, so that the strongest induction-shocks are without effect; there is neither dyspnoic breathing nor convulsions. The pupils are dilated. The result is similar in dogs on introducing 0.4 to 0.025 gramme of oxide of copper subcutaneously or into the veins. By this method of exhibition vomiting does not occur, which is in opposition to Orfila's result, but in unison with Daletsky's (*St. Petersburg Dissertation*, 1857). To produce vomiting, 0.6 to 0.7 gramme of oxide of copper required to be introduced into the stomach, whereby of course the general action was prevented.

The zinc-salts conduct themselves similarly to the copper-salts. The author employed the phosphate of zinc oxide and soda and the valerianate of zinc. The animals resist the zinc salts better than the copper salts. The minimum dose of oxide of zinc is 0.002 gramme for the production of complete muscular paralysis in frogs, and with small doses the animals recover. In dogs, 0.4 to 0.5 gramme given subcutaneously or injected into the stomach produce vomiting; 0.1 to 0.12 gramme of oxide of zinc injected into the veins, death.

Various other metallic salts, which do not possess a specific emetic action, as the salts of lead, manganese, and tin, do not extinguish the muscular irritability when they are not employed in too large lethal doses. Mercurial salts, on account of their violent local action, are not well suited for comparison.

In addition to these salts, the author investigated asaron and colchicin. The former is derived from *Asarum europæum*. In doses of 0.01 gramme introduced into the stomach, it acts as a powerful paralysing of the muscles in frogs. Frogs must receive internally 0.05 gramme of colchicin in order to obtain muscular paralysis. Even then it occurred late, and the heart is also affected late.

Regarding the connection between the emetic and the muscle-paralysing action, only this is certain, that these two phenomena do not stand in the relation of cause and effect.

NASSE ON DIFFUSION BETWEEN BLOOD-CORPUSCLES AND SERUM.—O. Nasse (*Sitzungsber. d. Marburger Ges. Z. B. d. g. N.*, 1874, no. 4), of Marburg, investigated how far the presence of carbonic acid and oxygen influence the diffusion between blood-corpuscles and serum. The defibrinated blood of a horse was allowed to stand till the corpuscles fell to the bottom, and then mixtures of serum and cruor in varying quantities were prepared. From one and the same mixture one portion was treated continually with carbonic acid, another portion with oxygen. As the chief result of the carbonic acid mixture, increase of the specific gravity of the serum, diminution of water and chloride of sodium. The extent of this change increases directly with the quantity of cruor. As the mean, 1,000 grammes of serum weighed 2.5 grammes more, contained 4.45 per thousand more solid constituents on the whole; on the contrary, 0.57 less of chloride of sodium. Water and chloride of sodium therefore pass into the blood-corpuscles, which thereby increase in volume. The carbonic acid also takes part in the increase of the specific gravity, but still this is not great enough to account for the entire change. Blood flowing directly from an artery of a horse was defibrinated at one time with air, the next time with exclusion of air. The serum of the latter was 0.3 gramme per thousand heavier. Further, the author investigated how other cells conducted themselves towards carbonic acid and serum. He employed for this purpose minced flesh and freshly rubbed down liver. In all cases the specific gravity of the serum increased considerably, nevertheless more pronounced in the presence of carbonic acid than in the presence of air, and the chloride of sodium diminished in the same sense. The author refers the phenomena to the coagulation of the protoplasm by the acidulation, which must be more pronounced in the presence of carbonic acid, as the tissues were all employed fresh.

PFLÜGER ON THE PHOSPHORESCENCE OF DEAD ORGANISMS.—E. Pflüger (*Pflüger's Archiv*, xi. 222), in a paper partly experimental and largely historical, discusses the cause of the phosphorescence exhibited by dead organisms. On observing by daylight a surface which has been luminous, it is always found to be covered by a whitish dirty slime, which may sometimes be from two to four millimètres in thickness. It is this slime or its constituents which possess the property of phosphorescence. The most important fact connected with this luminosity is, that it depends upon the presence of oxygen. As one experiment made by the author, showing the consumption of oxygen, may be mentioned the following. A solution of crystallised hæmoglobin of such a strength that the two absorption-bands were clearly to be observed spectroscopically, was treated with a few cubic centimètres of luminous salt water, and the whole placed in a hatching apparatus and warmed for a few minutes. The oxyhæmoglobin absorption-bands totally disappeared, and the single reduction-band of Stokes was present. On shaking the mixture a little, the two absorption-bands again reappeared. Heat alone, as is well-known, only causes the oxygen to disappear from a solution of oxyhæmoglobin after a long time. Here excessively small quantities of oxygen caused an increase in the phosphorescence of luminous water. Experiments were then made with substances which destroyed fermentation and putrefaction by killing the organisms. Alcohol

and carbolic acid rendered the luminous water at once dark. Fresh water fish are not phosphorescent unless they have come into contact with salt water fish; and in the few cases where they have been observed to be phosphorescent this may be explained by infection from some sea fish.

The microscopic structure of the slime covering the bodies of phosphorescent fish was then investigated. It was found to consist of lower organisms, the so-called schizomycetes, which are the proper luminous materials. This was shown by a filtration experiment, where the organisms were retained upon the filter (fine thick non-sized printing paper; Swedish filtering paper does not do) which remained luminous, while the perfectly clear filtrate was absolutely non-luminous, this clearly showing that the small living cells of the schizomycetes are the cause of the luminosity; and further, the author's experiments furnish strong proofs that the schizomycetes do not arise 'spontaneously,' but from spores.

In framing any theory of physiological phosphorescence, the following chief points must be kept in view.

1. The intensity of the light is generally extraordinarily weak, and therefore the phosphorescence can only be well observed by a retina which has become very excitable by being long in darkness. The retina is, then, in such a case, of almost endless sensibility.
2. The development of light is caused by oxidation.
3. According to our present knowledge, there is no living cellular substance which is so darkly coloured by perosmic acid as the 'light-cells' (lampyris). Nowhere, therefore, do the atoms which bind the oxygen in the living cell-substance lie so densely as in the light-substance.

TARCHANOFF ON THE CONTRACTILE ELEMENTS IN THE BLOOD- AND LYMPH-CAPILLARIES.—F. Tarchanoff (*Pflüger's Archiv*, ix. 407, *Centralblatt*, no. 30, 1875) has studied the properties of the contractile elements in the walls of the blood- and lymph-capillaries with regard to stimuli. He employed for the most part the transparent tails of young larvae of frogs, and as a stimulus the induced current of different intensities and duration. For narcotisation and to render the animals passive, he employed a three per cent. mixture of alcohol, in which after about fifteen minutes the animals became quite passive. The voluntary muscles no longer reacted to strong stimuli, whilst no disturbance of the circulation was to be observed. If a blood-capillary with lively circulation and clearly obvious spindle-shaped nuclei be placed under a very high power, and then stimulated by a moderately strong current for fifteen or twenty seconds, a shortening and thickening of the spindles soon becomes obvious, by which the lumen is narrowed and sometimes completely obliterated. If the stimulus act for two or three minutes, the elements retain their contracted form, and the capillaries remain impervious to the current of blood. If the stimulating current be soon interrupted, however, the spindle elements soon regain their original shape; the blood-current returns to its normal condition. The same experiment can be repeated several times on the same elements, until at last the cells no longer return to the normal. By the closure of the capillaries, a slowness of the current is produced in

the corresponding artery with consecutive dilatation, whilst in the veins stasis begins.

Mechanical and chemical stimuli produce the same changes; and the freshly excised webs and membrana nictitans of adult frogs conduct themselves analogously. Further, in employing the electricity, it was found that the spindles at the point of origin of the capillary from the artery contracted first and generally very early. The lymph-capillaries showed the same phenomena. If, however, very strong currents were employed, the spindle elements of the walls of the lymphatic capillaries were not only simply thickened as with the blood-vessels; they rather became pale, their contours disappeared, and their nucleus appeared in a rounded form. Twice the author observed that the protoplasm of those cells which had become pale fell into fine particles which fell into the passing lymph-current. The author further believes that the rounded nuclei of the disintegrated cells, which remain at first, are ultimately removed by the lymph-currents. The changes in the spindle-elements of the capillary wall the author, in opposition to Golubeff, regards as a vital process.

In the course of his investigations, Tarchanoff had also an opportunity of proving that the body of the fixed connective-tissue corpuscles also becomes thicker after long-continued electrical stimulation; the change is clearly but slowly produced. With gentle inflammatory stimuli the spindles, after they have been shortened for a day, gradually resume their original form. The out-wandering of the colourless blood-corpuscles and the other phenomena continue. The author concludes that the hypothesis of Golubeff—that all inflammatory phenomena are caused by the change in the capillary wall—is incorrect.

BERNSTEIN ON THE HEIGHT OF THE MUSCULAR TONE UNDER ELECTRICAL AND CHEMICAL STIMULATION.—The tetanic contraction of a muscle, whether produced voluntarily or artificially during life, consists in a vibrating motion of small particles in the interior of the muscular fibre. This is shown by the negative variation of the muscular current discovered by Du Bois-Reymond, and by the muscular tone which, according to the investigations of Helmholtz, consists of as many vibrations as the number of stimuli applied. The normal muscular tone, which is heard during voluntary contraction, consists of, according to Helmholtz, only 18 or 20 vibrations per second, but by means of an electrical tuning-fork much higher tones could be produced. In the human forearm he produced a clear tone with 240 vibrations.

J. Bernstein (*Pflüger's Archiv*, xi. 191), investigated the muscular tone produced by a greater number of stimuli per second. A special form of electrical tuning-fork was employed. The shocks were applied to the muscles of the leg of a rabbit, where the muscular tone can be easily heard when a stethoscope is applied over the skin. Three hundred and thirty vibrations gave a tone of the same height, tolerably strong, and of the same *Klangfarbe*; 418, 561, and 748 vibrations per second gave each corresponding tones. With 1,056 vibrations no distinct tone was to be heard in the muscle, although the muscle still contracted; instead of the tone, ill-defined noises occurred. When the nerve instead of the muscle directly was stimulated, 1,056 vibrations still gave a distinct tone, audible in the muscle; but

this tone no longer corresponded with the vibrations of the tuning-fork, but was a fifth, sometimes an octave, deeper. It now remained to determine the upper limit to which the muscular tone could be increased by the present apparatus. This was perfectly fixed when the tuning-fork gave the tone $b'' = 933$ vibrations, in which case the muscular tone of similar pitch was softly but distinctly audible.

There is a relation between the muscular tone, contraction, and the negative variation. With 300 vibrations per second, the muscular tone was of almost constant moderate pitch. With 300 to 400 vibrations it began to be weaker. Now, as a negative variation of the muscular current corresponds with every vibration of the muscular tone, so it is very probable the weakening of the tone depends upon the duration of the negative variation, which lasts about $\frac{1}{300}$ second. Chemical stimuli (saturated solution of chloride of sodium) applied to the nerve also gave a distinctly audible muscular tone.

MERING ON THE ACTION OF CHLORAL-HYDRATE AND CROTON-CHLORAL-HYDRATE.—J. V. Mering (*Archiv für Experimental. Pathologie und Pharmak.*, iii. 185, and *Centralblatt*, no 37, 1875) states from his experiments, that croton-chloral-hydrate, when given in small doses to rabbits before the cessation of the reflex action from the cornea, considerably retards the respiration; and when the corneal reflex action is extinguished, the number of respirations is diminished by a half. The substance (0.6 gramme) was introduced subcutaneously, or divided in scarcely half as large total doses and injected into the veins. Similar results were obtained with parallel experiments with chloral-hydrate. Croton-chloral-hydrate acts upon the frog's heart similarly to chloral-hydrate, even small doses (0.025 gramme given subcutaneously) causing cessation of its action. Blood-pressure experiments upon dogs, cats, and rabbits were performed with both substances. Small doses diminish the blood-pressure temporarily, and large doses diminish it continuously, till the blood-pressure curve reaches the abscissa. The pulse-beats are at first increased by both drugs, and this increase lasts somewhat longer with croton-chloral-hydrate. At a certain stage of the experiments the blood-pressure remained continually low, in spite of great blood-movements. This seems to show that the croton-chloral-hydrate extinguishes the arterial tonus, the heart's energy still continuing; this being, as is known, asserted of chloroform and chloral-hydrate. From these and former experiments, there seems to be a great similarity in the actions of the three above-mentioned drugs.

Lastly, the author combats Liebreich's theory of the action of croton-chloral-hydrate. According to this theory this substance in alkaline blood splits up into dichlorallylen, hydrochloric acid, and formic acid, and the former, analogous to aethyliden chloride, is the active factor.

The author employed only the trichlor-crotonate of soda, which even in the cold in dilute alkaline solutions passes into dichlorallylen. This substance was injected into rabbits, and even when five grammes were injected, it had no effect.

STEINER ON THE IMMUNITY OF THE TORPEDO AGAINST ITS OWN SHOCK.—J. Steiner (*Reichert and Du Bois' Archiv*, p. 684, 1874) reinvestigated this subject in the zoological laboratory of Naples. As larger animals give a more powerful shock, the author investigated the relation of the body-weight to that

of the organ, and found this relation nearly constant (about four to one). He concludes from this that the intensity of the shock in the body of the shock-yielding animal must be almost independent of the size of the animal. Whilst the shock of small rays freshly taken out of the water is clearly perceptible when one touches the posterior aspect of the organ, nothing is felt in large animals on touching any other part of the body where no organ is placed, not even on a spot lying between both organs and over the capsule of the brain. Nevertheless, a frog contracts with every shock when it is placed on the tail of the fish. A small ray also contracts when it is laid upon the posterior part of a larger one. In quite fresh animals, Dr. Steiner observed that their own body-muscles contracted with each shock. The immunity in the sense as at present accepted, therefore, does not exist. If two animals lie in the water favourably situated one over the other, it may be observed that the one contracts through the shock of the other, just as every fish does by its own shock when this is not too weak. The rays were also sensitive to the electric currents of a Bunsen's battery and to induction-shocks, but in a less degree than other fishes and than frogs.

DÖNHOF ON CO-ORDINATING CENTRA IN THE BEE.—Dönhoff (*Reichert and Du Bois' Archives*, 1875, Heft i. 47) observes that if the head be suddenly cut off a bee, and honey applied to its proboscis, sucking movements are made. The centra for co-ordinating the sucking movements must be in the head. If the body be separated from the head, the bee makes instinctive movements as if collecting pollen. If the body be placed on its back, it is turned over, so that the bee comes to stand on its feet. The centres for these movements lie in the thorax. If the abdomen be cut off and pressed up, the sting is pushed out and retracted, just as by an intact bee when it is touched on any part of the body. The centre for these stinging movements lies in the abdomen. The co-ordinating centres are therefore distributed over the brain and the ventral cord of the thorax and abdomen.

PREYER ON SLEEP PRODUCED BY FATIGUING-STUFFS.—W. Preyer, of Jena, in a preliminary communication to the *Centralblatt*, no. 35, 1875, records the results of some experiments with salts of lactic acid in the production of sleep. He finds, when a concentrated watery solution of lactate of soda is injected subcutaneously, or introduced in large quantities into the empty stomach, that the feeling of fatigue, of drowsiness, and a condition similar to or identical with natural sleep, very frequently occurs, provided that strong stimulation of the sensory apparatus be withheld. In many cases also yawning and sleep may occur when no sodic lactate is introduced directly, but when the conditions are present for the abundant formation of this substance in the intestine, as by drinking highly concentrated sugar solution, etc. There are great variations both in the period of occurrence, duration and intensity of the sleep. It differs with the age, size, and reflex activity of the animal.

TARCHANOFF ON A NEW MEANS OF ARRESTING THE HEART OF A FROG.—J. Tarchanoff (*Arch. de Physiol.*, 1875, p. 408) pulled out a loop of intestine with its corresponding piece of mesentery from the left abdomen of a frog, and exposed the loop to the air for a few hours until it became in-

flamed. The slightest touch of the inflamed loop sufficed at once to produce still-stand of the heart. The time of arrest varies from a few seconds to half a minute. The experiment does not succeed by gently touching the loop of intestine when pulled out at first, and while it is still uninflamed, nor after section of the vagus or poisoning with curara. The arrest takes place through the same mechanism as in the experiments of Goetz and Bernstein.

WM. STIRLING, D.Sc., M.D.

RECENT PAPERS.

Physiological Action of Lycostoma. By Dr. Isaac Ott. (*Philadelphia Medical Times*, October 16.)

On the Function of the Facial Nerve in the Vascular Innervation of the Glandular Organs. By Dr. François Franck. (*Gazette Hebdomadaire*, October 29.)

Reactions of Hæmoglobin and its Derivatives: Medico-Legal Examination of Blood-Spots. (*Gazette Hebdomadaire*, September 24.)

PATHOLOGY.

PERREYMOND ON COMMUNICATION BETWEEN THE CARDIAC AURICLES IN THREE FEMALES WITH CURVATURE OF THE SPINE.—M. Perreymond, interne at the Hôtel-Dieu Hospital of Toulon, sends an article to *L'Union Médicale* of August 7, 1875 (no. 93), containing an account of the occurrence of patent foramen ovale in three deformed females. The cases are briefly as follows. The first, aged thirty-three, a street-sweeper, was brought cyanotic to the hospital of Toulon, on March 7, 1873, and expired almost immediately. Her neighbours said she had frequent attacks of dyspnœa, in which she became almost black. She took a good deal of brandy, because she said that she was always cold. The spine was found curved greatly forward in the dorsal region, with slight lateral (right-sided) curvature. The lumbar spine was curved to the left. The left side of the chest was badly developed, and the lung of that side was scarcely one-third the usual volume. The heart was of great size, and placed on the right side and upper part of the chest, its base corresponding to the third right ribs. It covered the greater part of the right lung. The right half of the thorax descended lower than the left, forming a sort of narrow excavation, which lodged the right lung; which was thus subjected to the pressure of the ectopic heart above, and in its lower two-thirds to that of the posterior surface of the liver. The venous system was gorged with dark blood. The right auricle of the heart presented a large coagulum, communicating by means of an interauricular canal, with the blood coagulated in the left auricle; this canal, large enough to admit the little finger, was formed by the anterior and posterior semilunar folds of the membrana ovalis not being united; this was attached to the inferior cava by the greatly developed Eustachian valve. The right auricle was very large, and the tricuspid valve atrophied. The pulmonary artery was dilated.

The second case was observed in a woman thirty-four years old, who had spinal curvature. She died at the Maternité, of puerperal metro-peritonitis. Her spine was twisted to left, to right, and to left again. The pelvis was much deformed, obliquely ovate, and its conjugate diameter was only 2½ inches. At the lower part of the fossa ovalis of her heart there was a punched-out opening, round and with

smooth edges, about a quarter of an inch in diameter. The pulmonary artery was rather dilated; the tricuspid valve was incompetent, and the Eustachian valve atrophied. A month before her death, she was attacked with urgent dyspnoea with præcordial pain, in consequence of which the face and extremities became cyanotic. Auscultation was negative as far as regards the heart.

The third case relates to a poor hump-backed woman, aged thirty-seven years, who was about eight months advanced in pregnancy. She was attacked with pneumonia during the induction of premature labour, and died at the Maternité on February 25, 1875. Her spinal deformity was monstrous, resembling a wimble. The pelvis was much deformed. The right heart had eccentric hypertrophy, and the tricuspid orifice was dilated. In the anterior part of the foramen ovale, there was an opening a little bigger than a goose-quill. Her breath had been short, and from time to time she had attacks of dyspnoea, and was cyanotic. No cardiac bruit was noted. These facts, says M. Perreymond, do not stand alone. Amongst others similar there is one in the *Bulletin de la Société Anatomique* (2e série, tom. xii. p. 525): *Gibbosité rachitiques: Accès de dyspnée et de cyanose: Congestions pulmonaires: Persistance du trou de Botal*, by Dr. Chantreau.

The question arises, Is this co-existence of spinal deformity and interauricular communication a mere coincidence, or do they stand in relation of cause and effect to one another? We do not know all the causes which produce this patency of the foramen ovale. It generally goes along with stenosis of the pulmonary artery, and this, according to Louis, Bouillaud, [Peacock], etc., leads to the persistence of Botal's foramen. In these three cases the pulmonary artery was not contracted. Ought we to think that in rachitic humpbacks the heart is very early affected on account of the difficulties of the respiratory organs?

Dr. Bouvier says [*Leçons cliniques sur les maladies chroniques de l'appareil locomoteur*, p. 448] 'that the peculiar affections of the respiratory organs in cases of spinal curvature, affect the whole of their physiology. This influence is greatest in the heart, whose right cavities have great difficulty in unloading themselves of the venous blood which rushes into them.' In this way, he says, the right cavities become dilated. This dilatation is purely mechanical, being brought about by the greater tension of the blood in the right heart, owing to the embarrassment of the pulmonary circulation. May we not suppose then, knowing as we do that the closing of the foramen ovale is scarcely ever absolute in the most healthy, that the stress on the pulmonary circulation in these cases of rachitic spinal deformity either prevents the closure of the orifice between the two auricles, or may even reopen the communication when once closed? W. BATHURST WOODMAN.

HAMILTON ON THE PATHOLOGY OF MYELITIS.—An interesting inquiry into the morbid processes of myelitis by Mr. D. J. Hamilton is published in the current number of the *Quarterly Journal of Microscopical Science*, in which the author describes the microscopical appearances presented by the spinal cord after artificially induced inflammation, for he is of opinion that 'many diverse conditions have been described' as inflammatory 'which no doubt owed their origin to entirely different pathological processes.' One great source of fallacy he points

out as 'the inability to distinguish between the lesions known as "secondary degenerations" produced by failure of the trophic or nutritive nervous action exerted by the nerve-cells on the fibres to which they are attached, and those which are localised to a certain spot.' The most marked tissue-change was observed to occur in the axis-cylinders of the nerve-tubes, which were found to be swollen at intervals to four or five times their normal diameter. In some cases they formed oval tumours detached from each other, in others they were joined together by attenuated portions of the axis-cylinders. Most of the detached portions were homogeneous, but a few of them seemed to be marked by rings. These free masses were observed to undergo fissiparous division, and to give rise to little colonies of cells which invaded the adjacent tissues, leaving the distended nerve-tubes empty, and appeared to be identical with the colloid masses which are found in certain chronic nervous affections of the cord. In regions where the inflammatory process was less acute, the altered axis-cylinders did not pass beyond this colloid stage, but in parts more remote they gave rise to pus-corpuscles.

The most noticeable change in the nerve-cells was a 'swelling or molecular transformation of the cell-substance, by which its outline became indistinct;' the nucleus persisted for some time, but finally suffered a similar degeneration. No fissiparous division of the cell was observed.

The neuroglia simply presented an increase in the number of its protoplasmic nuclei.

Numbers of clear corpuscles were visible in the perivascular spaces and tunica adventitia of the blood-vessels of the pia mater, near the seat of lesion; some were also to be seen adhering to the inner coat of the vessels, and scattered through the grey matter. These were probably migrating white blood-corpuscles.

The author lays it down as a rule that, wherever the above-mentioned colloid bodies occur, the medullary sheaths are generally found to be distended and the axis-cylinders absent, as in those lesions of the nerve-centres which accompany locomotor ataxy, epilepsy, etc.; and he draws the conclusion that these and other diseases of the nervous system are essentially of a chronic inflammatory nature.

BUSHELL ANNINGSOON (Cambridge).

RECENT PAPERS.

On the Pathology of Miner's Lung. By Dr. Wm. Osler. (*Canada Medical and Surgical Journal*, October, 1875.)

Two Cases of Apparently True Hermaphroditism. By Drs. Richardson and Dwight. (*Boston Medical and Surgical Journal*, September 30.)

Pseudo-Hypertrophic Paralysis. By Dr. Gerhard. (*Philadelphia Medical Times*, October 16.)

On Inflammation. By Dr. Thün. (*Edinburgh Medical Journal*, November, 1875.)

Contributions to Pathological Ocular Anatomy. (*Recueil d'Ophthalmologie*, October, 1875.)

Ectopia of the Liver: Organic Affection of the Heart. By Dr. Tempini. (*Gazette Médicale de Paris*, November 20.)

Myelitis and the Development of the Marrow. By M. Pierret. (*Le Progrès Médical*, November 27, 1875.)

Mr. WILLIAM COLLES, Regius Professor of Medicine in the University of Dublin, has been appointed Surgeon to the Queen in Ireland.

MEDICINE.

JANEWAY ON VOCAL FREMITUS IN PLEURISY AND PNEUMONIA.—Dr. E. Janeway (*New York Medical Record*, June 15) writes:—The value of vocal fremitus as a physical sign in the diagnosis of pleurisy with effusion from pneumonia is, it seems to me, not infrequently rated too highly. Some, in fact, appear to consider it an absolute means of distinguishing the one from the other condition. My reasons for not esteeming it as much as those who hold this opinion, are based upon the observation of cases in which such a belief would have been or proved to be a mistake. Let me first give a brief record of two cases of pleurisy with effusion, in which vocal fremitus was present over the affected portion.

The first of these was a male patient in Ward 8 of Bellevue Hospital last summer (Simms), aged thirty-three. He was taken sick two days before admission with rigors and a pain in the left side. When admitted the physical signs of interest were: Flatness on percussion on the right side of chest below the angle of the scapula, increase of vocal fremitus over the affected portion, feeble and distant respiratory sounds, ægophonic vocal resonance.

June 3, two days later, distinct vocal fremitus was present over the affected portion, and a hypodermic syringe withdrew clear serum from the pleural sac at this part.

Aspiration of the affected side was performed several times, with only partial relief, and in consequence of obstruction to the needle, or failure of the apparatus, on two occasions but little fluid was obtained. After the second aspiration, air was detected in the pleural cavity above the level of the remaining fluid, but below this vocal fremitus persisted. Later seropus and pus formed in the cavity, and it was decided to make an opening in the pleura, and allow the fluid to drain off. The reasons for the operation were the great dyspnoea, the existence of pus in the sac, the failure of aspiration to afford relief which was more than temporary, the increasing weakness of the patient, and finally paroxysms during which the patient would pass almost into a state of collapse. The day following the incision vocal fremitus disappeared from the affected portion. On November 12 the patient was discharged.

The second patient was a male, fifty years of age, admitted to Bellevue Hospital on November 17, 1874. His illness had commenced one month before, with symptoms which pointed to the existence of pneumonia on the left side. When admitted he was thought to have a chronic pneumonia, pleurisy with pneumonia on the left lower lobe, extending into upper. Of this man I made a careful examination about a week before his death. The following physical signs were then present. Flatness on percussion existed over the lower lobe of the left lung, except near its most anterior portion; here there was some resonance. Bronchial voice, whisper, and respiratory murmurs were heard over this part more distinct above, more distant and feebler below. Measurement showed the two sides to be of equal size. The heart was not displaced, and vocal fremitus existed over the affected portion, and was increased as compared with the opposite side. There was no change of the level of flatness on percussion, and this line of flatness corresponded very closely to the interlobar suture.

The character of the bronchial breathing and voice made me suspect fluid, and at my request the house physician, Dr. Chapin, introduced the needle of a hypodermic syringe in the pleural sac, but failed to obtain any fluid. The hypodermic syringe seemed to be good, as tested by drawing up water from a tumbler. I then proposed bringing an aspirator on the succeeding day, for more thorough exploration, but the patient passed into a typhoid state, seeming to indicate the existence of meningitis as a complication. A *post mortem* examination revealed dilatation of the ventricles of the brain with a granular condition of the ependyma, and empyema of the left side corresponding to the site of the left lower lobe, and shut in by adhesions of the upper lobe. A small portion of the anterior part of the lower lobe was adherent to chest, near heart, and the rest was carnified and pressed upwards, inwards and backwards. The heart was not displaced. The lower part of the upper lobe of the left lung was hepatized. There was no adhesion of the lung over the space where I had perceived vocal fremitus; nor was any band-like adhesion, such as sometimes occurs, present.

These two cases, which have been observed within a period of eight months, are sufficient to show that vocal fremitus may be present over fluid in the pleural sac, and may even be exaggerated. The disappearance of the vocal fremitus in the one case after the removal of the fluid, and the results of the *post mortem* examination in the other, show that the vocal fremitus was conducted through fluid to the chest wall.

In addition to these cases, I have observed two others during the same period, in one of which a slight vocal fremitus existed over fluid in the left pleural sac. This was enough to cause one physician to doubt the correctness of the diagnosis, though the left was two inches larger than the right and the heart displaced. He, however, confessed, when a hypodermic syringe drew fluid from this portion, and an aspirator removed sixty ounces of serum.

In the other case the vocal fremitus was increased, but of this case I will make no use, as the patient escaped from my observation before I was able satisfactorily to determine the conditions present.

Again, cases present themselves in which the vocal fremitus is exceedingly feeble or absent on the healthy side, and then the absence of this sign has no especial value on the diseased side.

Such a case I have lately seen in a young man with rheumatic pericarditis and a small effusion in the left pleural sac. In this case vocal fremitus is absent at corresponding points on the two sides, but above the level of the fluid for a short distance it is considerably increased on the left or affected side; while at a corresponding point on the right side it is only feebly perceptible. Bronchial character of the expiratory sound is audible over the fluid and broncho-ægophony exists near its upper limit. I can very readily imagine that an incomplete examination might lead to the supposition of pneumonia. While I have been writing this article, the fluid has accumulated somewhat on the right side also, but the vocal fremitus remains as at first. On the other hand, cases have occurred in which pneumonia has been mistaken for pleurisy, with effusion, by very good observers. Some years ago I made the *post mortem* examination in a case of supposed pleuritic effusion. The autopsy revealed a

small aneurism resting on the left main bronchus, and this is completely occluded by a firm thrombus which had formed by the escape of blood from the aneurism into it by means of a small opening. The left lung was throughout in a state of grey hepatitis, and its bronchi were filled with purulent fluid. Those who had seen this case during life stated that all the signs of pleuritic effusion had existed, absence of vocal fremitus, of respiratory murmur, of vocal resonance, with the existence of flatness on percussion. If any suspicion of the real condition of affairs had been entertained it seems probable that absence of displacement of the heart, and of increase of the measurement of the affected side, might have corrected the diagnosis, considering the extent of disease. Since that time I have seen a second nearly identical case.

Again it sometimes happens that with ordinary pneumonia producing complete solidification of a lobe, considerable diminution or absence of the vocal fremitus may occur.

My friend and colleague, Professor Flint, is also in the habit of drawing attention to the greater value of absence of vocal fremitus on the right side as a sign of pleuritic effusion, and of its exaggeration on the left side as a sign of pneumonia, in view of the normal difference of vocal fremitus on the two sides.

It will be obvious that, in this article, I have considered that the more important physical signs, percussion and auscultation, have pointed out the site of the disease, but have not been able to establish the diagnosis.

ESPINET ON THE LEPER ASYLUM OF TRINIDAD.—Dr. Espinet (*Report of the Medical Superintendent of the Leper Asylum for the year 1874*, Legislative Council, June 1, 1875) reports the rate of mortality as diminished, and probably less than in any previous year since the asylum was established in 1843, the total number of patients being 114, the total number of deaths nine; of these nine fatal cases, five were of the tubercular, and four of the anæsthetic form. The immediate cause of death was in one chronic hepatitis; in two diarrhoea; in four exhaustion; in two dropsy. The diminished mortality is ascribed to several causes, viz., the exceptionally healthy condition of the island; the improved drainage of the asylum and surrounding swamps; the removal of surrounding brushwood; improved nursing; a regular system of labour and exercise introduced by Dr. Gavin Milroy, and the lesser number of patients brought to the hospital *in extremis*.

The popular belief that lepers are long-lived is an error; leprosy is, in the great majority of cases, an incurable disease, which progresses *per se* to a fatal termination, and lepers succumb to general diseases more rapidly than others. Children are more severely afflicted than adults; and it may, Dr. Espinet thinks, be laid down as a law that the severity and rapidity of progress of the disease are in proportion to the earliness of the period of life in which it is first developed. Leprosy is confined principally to the poorer classes, but it is met with in every race in the island, black, white, or mixed. Instances of the disease have been seen in Germans, Italians, Poles, Irishmen and Englishmen, after a residence of some years. The races most subject to it, however, are the Portuguese and Hindoos. In the latter the disease is confined principally to the male sex, six females only having applied for and

obtained admission to the asylum in six years, as compared with forty-eight males admitted, in addition to many others refused for want of room.

This comparative immunity of female coolies is in accordance with Dr. Carter's observations on leprosy in India, where he found the proportion of males to be 81.4 per cent. of the number affected, whereas in Norway it is only 56 per cent.

Dr. Espinet is of opinion that the Indian and Portuguese immigrants, in whom the disease appears after their arrival in the island, have it by inheritance, and not from hygienic causes, independent of family taint; and the period of incubation may be prolonged beyond the limit of fourteen years assigned by Professor Boeck, of Norway; in some cases even to thirty years or more. Leprosy is indeed most frequently inherited, but in certain cases it is contracted accidentally, in some way not easily explained. Danielssen and Boeck found that of 213 cases, the disease was hereditary in 185, and that it was of spontaneous development in 28 only. The hereditariness was more frequent on the maternal than on the paternal side, and in the collateral than in the direct line. In some cases there is a suspension of the disease, and patients in that condition may reach the average term of life. According to Dr. Carter, a period of from three to six years may, it is known, elapse before the return of pains, fever, or eruption, but how much longer a period is not determined. Such cases belong almost exclusively to the anæsthetic variety. The statement that children are born leprosy, or become so shortly after birth, is not borne out by Dr. Espinet's experience. He has never seen an instance of leprosy at an earlier period of life than four or five years, even in the children of parents in the advanced stage of both the anæsthetic and tuberculous forms. When the disease appears in early life, and before puberty, it checks both growth and development. Of ten male inmates between fourteen and eighteen years, eight do not exhibit the slightest marks of even approaching puberty; in the remaining two the sexual organs are fully developed, but the other signs of virility are only just beginning to show themselves. The female children gain little in stature; menstruation appears late, and is scanty and irregular.

Dr. Espinet considers that leprosy has some pathological connection with phthisis, epilepsy, and insanity. Full data as to the distribution of lepers in the island are wanting; but it would seem as if local peculiarities of soil, climate, and situation have little influence in the production of the disease, since patients come from most parts of the island, from places of the most opposite topographical character.

For the prevention of the spread and development of leprosy, the following measures are suggested.

1. Medical examination of immigrants before they are permitted to land, those affected with disease being either returned to their own country, or transferred to the leper asylum.

2. The segregation of lepers, and the separation of the sexes.

3. The mitigation of the leprosy diathesis in families, by hygienic measures, such as simple nutritious diet, regular exercise where practicable, and change of climate—to a place where leprosy is not endemic.

4. Early treatment of the disease by the preceding means, and by appropriate medicines.

The internal remedies found most beneficial in the incipient stage of leprosy, when the characteristic

stains only exist, are tonics, such as quinine, iron, cod-liver oil, Parrish's chemical food, and the so-called alteratives, iodide of potassium, liquor potassæ, and hyposulphite of soda.

The external applications used are baths of salt or fresh water, or medicated with sulphuret of potassium, and frictions with Chaulmoagra oil, tincture of iodine, *huile de cade*, or oil of the cashew-nut. The cashew-nut oil was employed after Dr. Beauperthuy's method with decided advantage in several cases, and yielded better results than any other plan of external treatment.

In one case of anæsthetic leprosy, of seven years' standing, there was slow and gradual return of sensibility to the limbs, perspiration partially re-established, increase of muscular strength in the limbs, considerable relaxation of the contractions of the fingers, and return of normal heat to the skin; but a relapse occurred after five or six months. In another case, however, the amelioration had continued up to the date of the report.

In the tubercular form, the tubercles may be entirely removed by the cashew-nut oil, and the skin apparently restored to its normal state; but the tubercles return in from three to eight months after the suspension of treatment, in greater luxuriance.

Twenty-two selected cases were treated after Dr. Beauperthuy's method by Dr. Brissac, at Guadeloupe, and in five an apparent cure followed; but whether this was permanent, has not been ascertained.

The cashew-nut oil is most beneficial in the anæsthetic form of the disease, and at its commencement, when, by its blistering action, it removes stains, and appears to restore sensibility, by liberating the extreme nervous filaments from the albuminoid deposits which surround them. When the main trunks and nervous centres are implicated, it does not seem capable of producing lasting good. Leprosy, being a constitutional, and not a local cutaneous parasitic disease, as supposed by Dr. Beauperthuy, should be treated principally by internal remedies; since external applications remove only effects, not causes of the disease.

W. B. CHEADLE, M.D.

KARRER ON THE PRESENCE OF ALBUMEN IN THE URINE OF EPILEPTICS.—No. 27 of the *Berliner Klinische Wochenschrift*, July 5, 1875, has a carefully written paper on this subject, by Dr. Ferd. Karrer, assistant medical officer of the lunatic asylum at Erlangen. He states that, in no. 59 of *Virchow's Archiv*, Dr. Huppert, of Colditz, published an article, entitled, 'Albuminuria a symptom of epileptic attacks.' His researches led him to conclude that 'every epileptic seizure, whether pronounced or abortive, is immediately followed by a transitory albuminuria.' He further concluded 'that the more frequent the attacks, whether masked or otherwise, the more violent they are; and the sooner afterwards the urine is examined, the greater, within certain limits, will be the quality of this abnormal albuminous infiltration.'

His method was to heat to boiling point about fifteen cubic centimetres of urine, and when partly cooled to add about eight drops of nitric acid; then to let it stand for sixteen or twenty-four hours in a cool place, and note the result. He classifies the albuminous reactions under three degrees. The first or slighter degree consists in slight turbidity or opalescence, to recognise which oblique illumination, or the shade of

some dark body (as the bar of a window, etc.) may sometimes be necessary. The second degree, which he considers the commonest, consists in more or less decided whitish clouding or turbidity, of unmistakable character. The third degree consists of flocculi and sediments. As his method rests on a single test, considerable stress is laid upon 'traces' of albumen, and very small quantities of it. The smallness of the quantity accounts for its having been so long and so frequently overlooked.

In the summer and autumn of 1874 Dr. Karrer spent some time in examining this question, with all the precautions advised by Dr. Huppert. He examined the urine of about a dozen epileptics, all of whom had been so ten years; all had severe attacks, and there was mental disease in all. In not one of these, although the urine was repeatedly examined just after the fits, did he find albumen in the urine. Although he attributes little importance to the opalescence of the urine in Huppert's method, this reaction was not forgotten. At first Dr. Karrer used three tests. (1) Boiling, with a small quantity of acetic acid; (2) Heat and nitric acid; (3) Nitric acid alone, and latterly (4) Ferrocyanide of potassium and acetic acid. As a reason for attributing but slight importance to the opalescent appearance after heat and nitric acid, he gives the following experiments.

The urine of seven male patients with chronic mental disease was treated (1) by nitric acid alone, and (2) by heat and nitric acid. In all of these, after standing twelve hours, there was more or less opalescence, and in one some turbidity. He now prepared, by diluting a 0.6 per cent. solution of egg-albumen, solutions containing 0.06 per cent.; 0.006 per cent.; and 0.0006 per cent., etc., and these were tested precisely as the urine, with the following results. The 0.0006 per cent. gave immediate turbidity, and after standing, a fine flocculent precipitate. The 0.0006 per cent. gave turbidity, and after long-standing, a very slight precipitate. With 0.00006 per cent. there was no reaction. Similar solutions were treated at ordinary temperatures with the ferrocyanide and acetic acid test, with the following results: In 0.006 per cent. copious flocculent precipitate; in 0.0006 per cent. tolerably copious precipitate; in the 0.00006 per cent. still fairly abundant precipitate. Even 0.000006 per cent. gave whitish turbidity in one trial, and (after 6 or 8 hours) some flocculi in another! The ferrocyanide and acetic acid test was now added to the urines which had been tested with nitric acid. They gave no reaction. Then ten cubic centimetres of urine and ten cubic centimetres of the 0.00006 per cent. albumen solution were mixed, so that each test-tube contained 0.00003 per cent. of albumen. In every case the ferrocyanide and acetic acid gave a pretty copious flocculent precipitate after about a couple of hours. In 0.000003 per cent. mixtures of albumen and urine, he could obtain no reaction in this way. He therefore concludes the prussiate of potash test to be far more delicate, and is inclined to consider opalescence with nitric acid as of little value. Therefore his method detects $\frac{3}{10,000}$ of albumen in the urine, though $\frac{3}{100,000}$ may still be problematical. He justly remarks that the presence of albumen should scarcely be inferred except two tests give a similar result.

[The reporter having himself devoted a good deal of time and trouble to the question of how best to detect albumen in the urine, and having also exa-

mined the urine of about thirty epileptics just after their seizures, begs to add to this paper of Dr. Karrer's the following remarks. (1) It is certainly not true that all, or even the majority of epileptics, have albumen in their urine immediately after the fits, so far as any of the recognised tests for that substance may be trusted. So far he thoroughly agrees with Dr. Karrer.

But (2) some epileptics do, undoubtedly, exhibit a transitory albuminuria, and this just after fits. This appears partially explicable by diet, as it chiefly occurred in those fed on a highly nitrogenous diet. (3) The reporter believes that sediments should be examined with the microscope, so as to correct the chemical tests, and further that albumen is present in urine in several forms, which differ clinically as well as chemically; and whilst he agrees that more than one test should be used, he dissents from the proposition that egg-albumen is identical with all or even most of the albumen present in urine. Will not some of our superintendents of asylums make fresh trials (by several tests) of the urine of epileptics immediately after the fits, and in the intervals?—*Ref.*]

RISEL ON A HYDATID CYST OF THE LIVER TREATED BY INCISION: RECOVERY.—The publication of Ranke's case from Volkmann's clinic (*Deutsche Zeitschrift*, 1874, no. 45) has induced Dr. Risel, of Halle, to publish the following case in no. 28 of the *Berliner Klinische Wochenschrift* (July 12, 1875). Mrs. F., aged thirty-seven years, sought advice in September, 1874, on account of pains in the right hypochondriac region, which had lasted about a year. For a week or two before applying they had much increased in severity, and were associated with vomiting and urgent desire to pass urine. She had given birth to a fourth child, whilst in a standing position, an hour and a half before being seen! She was slightly jaundiced. Between the mammillary and axillary lines there was a hard tumour, not fluctuating, but very sensitive to fine pressure, about two and three-eighths inches in its vertical, and four and three-quarters inches in its transverse measurements. It appeared attached to the liver. Its lower border, which was rounded, showed a slight crescentic notch, like the hilus of the kidney. Above this was apparently the thin edge of the liver. The tumour could be moved from side to side under chloroform, and so much so, towards the axilla, as almost to be pushed out of reach of the finger. The liver did not seem to move with it in these manœuvres. There was bile-colouring in the urine. The laxity of the abdominal walls greatly assisted in this examination.

Towards October the jaundice had vanished, there was obscure fluctuation, and the tumour had considerably increased in size. An exploratory puncture to the depth of one and a quarter inch brought away a liquid fluid containing chloride of sodium, but no albumen, and no trace of animal tissues. There seemed to be a little succinic acid ($C_4H_6O_4$) but the quantity of fluid was too small to allow its accurate determination. On November 9, about forty Carlsbad needles were inserted in the tumour within a space of about $3\frac{1}{4}$ by $1\frac{1}{2}$ inches. The whole was covered over with one of Lister's compresses. The skin in the vicinity of the needle-heads, and even the subcutaneous tissue, having ulcerated, nearly all the needles were taken out next day. On November 13, an exploratory puncture

showed that the contents of the cyst, now considerably more tense, were puriform. Next day, with some difficulty, a curved Simon's trocar was forced through the anterior wall of the cyst, and an India-rubber drainage-tube introduced. Very little fluid escaped through this. Her temperature rose from its previously normal limits to 99.7° in the morning of the 19th, and 104° Fahr. in the evening. On the 20th, an incision, rather more than an inch in length, was made with a bistoury through the thickened tissues, a director being passed alongside the drainage-tube. Nearly seventy ounces of purulent offensive fluid with a quantity of collapsed and in part bile-tinged echinococcus cysts of various sizes escaped. The remaining needles were removed, the cyst washed out with a 2 per cent. solution of carbolic acid; and a five-inch drainage-tube, as large as a finger, was left in, and one of Lister's compresses laid over all. During the next fourteen days many hydatids of varying size, but all collapsed, escaped. The cyst was frequently washed out with the carbolic acid solution, and treated antiseptically throughout. The further progress of the case (except for a transitory attack of erysipelas ascribed to an instrument not perfectly clean) left nothing to be desired.

W. BATHURST WOODMAN.

CHOATE ON HÆMATURIA.—In the *Boston Medical and Surgical Journal* for September 16, is a case of hæmaturia related by Dr. David Choate. It is as follows. J. M., the patient, was a man about forty years of age, of a robust frame and healthy countenance. He complained in May, 1874, of blood in his urine, reporting that it was seen first in February, three months previously, at which time it was small in quantity and lasted but three or four days. He was then free from it for about a month. From the date of its reappearance, it persisted uninterruptedly. The amount lost from day to day could hardly be conjectured. The quantity of urine and blood together was not greater than would be considered normal for urine alone, but the whole was invariably of a deep blood colour. When the urine was allowed to stand, there was deposited a layer of blood-corpuscles. The blood was always intimately mixed with the urine; it was never passed by itself, in liquid form or in coagula. The microscope discovered neither mucus nor pus nor casts; the whole field was filled with blood-corpuscles. On one occasion the microscopist saw what he suspected to be a cancer-cell. Albumen was present, but only in quantity proportioned, as it seemed, to the amount of blood. An increased frequency of micturition was spoken of by the patient as occurring in the early stage of the complaint; it lasted about three weeks, but after he came under observation there was none during the entire sickness. He had no pain in the region of the bladder or loins, or in the course of the ureters, with a single exception; and this just as the disease reached its climax, in November, a point to which reference will be made later in the report.

Contrary to advice, the patient continued at his work, favouring himself as far as possible in respect to lifting, until July 3, when he was induced by loss of strength and the hope that remedies might prove more efficacious, to cease from labour entirely. He continued still to go abroad into the air, avoiding all sudden and violent movements, till near the close of October. From this time he remained indoors, and soon afterwards was compelled, by the increasing debility and the vertigo and faintness consequent

upon assuming the erect posture, to take to his bed. The anæmic state was now fully developed, as the skin and mucous membranes clearly witnessed.

The disorder pursued its way, well-nigh unaffected by remedies, up to the fourth week in November. The hæmorrhage was so obviously passive that the medicinal treatment consisted almost exclusively of the administration of the various astringents. The only one of these that appeared at all to influence the flow, and which gave some promise of arresting it, was gallic acid, given at the suggestion of Dr. Mack (who saw the patient once), in doses of five grains every two hours. This was afterwards increased to seven grains every two hours, day and evening, and continued thus through several successive days.

On November 21, hypodermic injections of ergotine were begun. Of a solution containing two grains in a fluid drachm of glycerine and water, six drops (equivalent to about one-fifth of a grain) were administered twice daily; this was given on the 21st, 22nd, 23rd (one dose only this day), 24th, and 25th, the dose having been during this time increased by two drops, bringing it up to rather more than a quarter of a grain. On the 26th the stomach became irritable, and vomiting occurred; the medicine was therefore suspended. Vomiting persisted through the entire night of the 26th. On that day, however, the urine suddenly became clear, and so continued from that time onward. Some twenty-four hours later the patient had a sharp attack of pain in the course of the right ureter, followed by the passage of a small coagulum, apparently moulded by the ureter.

From the condition of extreme anæmia into which he had sunk, he slowly recovered.

INGLIS ON AN ANOMALY OF PERSPIRATION.—In the *Detroit Review of Medicine* for August is a communication by Dr. David Inglis, to the following effect.

Mrs. F., aged forty-five, strongly built, generally healthy, mother of four children, the youngest aged about eight years, gives the following history. Five years ago, her health, which had previously been good, began to suffer. She had leucorrhœa, and other symptoms of uterine trouble. She was also much afflicted with pains in all parts of her body, which, from her description, seem to have been of the nature of subacute rheumatism. After passing through the hands of various physicians, she came at last to a travelling 'root-doctor,' who left her a large quantity of his wares, to be taken in large doses. Hereupon her pains left her, but a trouble began which continued unabated up to the time when I saw her, some six weeks since, namely, profuse perspiration, brought on nightly by lying upon her right side. This phenomenon occurs regularly every morning after a night's rest in bed, and only then, her usual habit being to turn over on to her right side, and at once a general perspiration begins, which at once ceases upon her turning back on to her left side. She can lie upon her right side during the day, or early part of the night, without perspiring. If she do not turn upon her right side, and so secure a sweating in the morning, she feels much oppressed during the day, has a headache, and is poorly until she again has a sweat the next morning. If, owing to other causes, the sweating be stopped, she feels the same oppression and headache, and it was upon such an occasion that I was first called to

see her. Upon giving some sudorific she was soon relieved. Further, she is in summer, during warm weather, very prone to perspire, and has every summer much annoyance from a very abundant crop of sudamina, which causes an almost intolerable itching. The sweating in winter is not accompanied by sudamina, and the perspiration has at no time any peculiar odour. J. MILNER FOTHERGILL.

JASTROWITZ ON THE PATHOLOGY OF HEMIPLEGIA.—This paper (*Berliner Klinische Wochenschrift*, August 2, 1875), treats more of the diagnostic symptoms of hemiplegia than of the pathology of that disease.

In cases of coma where it is doubtful which side is affected, the author gives one or two symptoms which he has found useful in deciding that point. He considers that the condition of the pupil is of much value, because there are three sets of nerves concerned, viz., the sympathetic, the motor oculi, and the tergeminum. At the same time this very fact renders it difficult to state the exact portion of the brain which is affected.

In males there is a symptom which is of much wider signification.

This is the condition of the cremaster. It is well known that tickling or gently rubbing the inside of the thigh causes contraction of the cremaster; and drawing up of the testicle. This is caused by the irritation thus set up in branches of the crural nerve, the saphenus nerve, and the anterior branch of the obturator, being conveyed to the upper part of the lumbar enlargement of the cord, and thence reflected along the genito-crural nerve. His observations on this point have led him to the conclusion that, on the affected side, when this irritation is set up, the testicle is not drawn up, whilst on the sound side this action of the cremaster is rendered excessive. Generally as the paralysis passes off, this muscle also resumes its normal action, but the abnormal condition may remain for months and even years. The author finds that the best method of applying this test is to make pressure on the saphenus nerve, at the point where the sartorius at its lower end forms a groove with the vastus internus, about a handbreadth above the internal condyle. The value of this symptom is great, on account of the connection of the muscles affected with the muscles of the abdominal wall. Another symptom of value is the tendency the patient has to slip out of bed on the side which is not affected. This symptom being caused by the inability of the diseased side to support the weight of the sound side.

With regard to the symptom often mentioned in cases of nerve-disease, viz. 'Manus ad genitalia,' the author thinks this is due to irritation commencing in the brain, in the same manner as is grating of the teeth, etc. In meningitis, for instance, it is not difficult to conceive that either a peripheral irritation is set up or a hallucination, which causes the patient to convey the hand in the direction of the genitals.

W. HENRY KESTEVEN.

RECENT PAPERS.

On the Pathology of the Kidneys. By Dr. A. Fränkel. (*Berliner Klinische Wochenschrift*, October 25 and November 1.)

Note on Nasal or Naso-Pharyngeal Irrigation, and its Application to the Treatment of Acute and Chronic Affections of the Nasal Fossæ. By Dr. Constantin Paul. (*Le Mouvement Médical*, November 20.)

- A Case of Aortic Aneurism treated by Galvano-Puncture after Ciniselli's Method. By Dr. F. Fischer. (*Berliner Klinische Wochenschrift*, November 1.)
- Report of an Epidemic of Measles and Whooping-Cough in 1868. By Dr. Königer. (*Berliner Klinische Wochenschrift*, November 8.)
- A Case of Tumour of the Brain. By Dr. A. Voelkel. (*Ibid.*)
- On Unlooked-for Death during and after Thoracocentesis; and Epileptiform Convulsions after Pleural Injections. By Dr. Maurice Raynaud. (*L'Union Médicale*, November 20.)
- A Case of Menière's Disease. By Dr. Putnam. (*Boston Medical and Surgical Journal*, November 11.)
- On Illness. By M. Labbé. (*Le Mouvement Médical*, November 27.)
- Personal Experience of Death from Aneurism and Disease of the Heart in the Service. By Surgeon-Major William Curran. (*Edinburgh Medical Journal*, November, 1875.)
- Purulent Pleurisy in a Child Eleven Years Old: Seventy-four Punctures and Washings; Empyema: Cure. By M. Gimbert. (*Lyon Médical*, November.)
- On the Accidents of Typhoid Fever, and specially on Abscesses of the Anus. By M. K. Chalot. (*Montpellier Médical*, November, 1875.)
- On the Treatment of Spasmodic Asthma by the Subcutaneous Injection of Morphia. By Dr. Keith Anderson. (*Practitioner*, November, 1875.)
- Symptoms, Pathology, and Treatment of Albuminuria. By Dr. Lauder Brunton. (*Ibid.*)
- On Chronic Bronchitis: Its Nature and Treatment. By Dr. Saint-Vallon. (*La France Médicale*, November 13.)
- Result of Treatment of Typhoid Fever by Cold Baths at Heidelberg Hospital. By Dr. Schultze. (*Bulletin Général de Thérapeutique*, November 15, 1875.)
- Pneumatometry. By Dr. Elsberg. (*New York Medical Journal*, November, 1875.)
- On Hyperpyrexia. By Dr. Routh. (*Medical Times and Gazette*, November 17.)
- On the Cardiac Rhythm termed 'bruit de galop': its Mechanism and Semiological Value. By Dr. Potain. (*L'Union Médicale*, November 11.)
- A Remarkable Case of Obesity treated with Liquor Potassæ and Extract of Fucus Vesiculosus. By Dr. Foot. (*Dublin Journal of Medical Science*, December, 1875.)
- Imaginary and Retarded Hydrophobia. By Dr. Delore. (*Gazette des Hôpitaux*, November 27.)
- Curability of Menière's Disease: Two Cases of Cure. By M. Charcot. (*Gazette des Hôpitaux*, December 4.)
- On the Treatment of Rheumatism. By Professor Behier. (*Bulletin Général de Thérapeutique*, November 30.)

DISEASES OF CHILDREN.

KIRSCH ON SCARLATINA AND TYPHUS FEVER.—In a contribution to the subject of the Diseases of Children, Dr. S. Kirsch, of Prague, relates a case of scarlatina with diphtheritis of the mouth and pharynx, caries necrotica of the anterior part of the lower jaw, its loss together with the teeth, nephritis, and recovery.

The child was five and a half years of age, and the fever in its early stage presented much severity of symptoms. In the diphtheritic process the tip of the tongue was involved and sloughed off, this being followed by dangerous hæmorrhage. The separation of the anterior part of the lower jaw followed this, while the occurrence of albuminuria and anuria added to the serious nature of the case.

The use of carbolic acid and permanganate of potash was resorted to in the treatment of the throat and mouth. Attention is also directed to the beneficial influence of quinine in the reduction of the evening temperature.

A second contribution is entitled 'A peculiar Prognostic Moment' in a case of typhus in a child. The unfavourable prognosis was founded on the fact that, very soon indeed after

the mother's pregnancy commenced, the husband died in a lunatic asylum from acute mania. It is supposed by the author of the paper that the constitutional condition of the child must have been so affected as to render it unable to withstand the effects of an attack, by no means severe, of typhus fever. The death of the child is believed to prove the value of the supposition.

WORONICHIN ON VARIOUS CAUSES INFLUENCING DENTITION IN CHILDREN.—Dr. Woronichin (*Fachbuch der Kinderheilkunde*, vol. ix.) has arrived at the following general conclusions on the subject of dentition in children.

1. In those which are not rachitic, dentition commences generally between five to seven months, and at eight months in the male, 12 teeth are evident, in the female 10. Where the child is rachitic, this occurs a month later.

2. The end of dentition is arrived at in the third year.

3. Dentition is backward in rachitic children.

4. Constitutional disposition and attention to nutrition, both exert influences on dentition. Children with good constitutional health and proper nutrition suffer less during the process of dentition than others less fortunate in these respects.

ROBERT J. LEE, M.D.

SURGERY.

FORBES ON TETANUS.—In the *Philadelphia Medical Times*, of June 12, is an account of a paper read before the College of Physicians of Philadelphia, on April 7, by Dr. William S. Forbes, on the history of a case of acute tetanus, beginning on the fourth day after an extensive burn, and advancing with great rapidity.

S. H., aged seventeen, was admitted to the male surgical ward of the Episcopal Hospital on the afternoon of February 5, with burns of his body and extremities from hot iron, which had been accidentally blown against him from a foundry. He had walked to the hospital, a distance of a mile and a half, the air at the time being very cold. He was burned severely from his waist to his heels; the greater portion of the burn being of the second and third orders of Dupuytren. He was at once put to bed, his wounds dressed with linseed-oil and lime-water, his whole person enveloped with cotton-wool, and half a grain of sulphate of morphia administered and repeated five hours later. The following evening he had a chill, and complained of pain in his extremities and along the spine. Morphia was given, the oil-dressing was removed, and replaced by the ceratum resinæ acidum. The following two days he felt quite comfortable; took food and a little morphia, which was the last he received.

On the 9th he had no desire for food; complained of soreness, and had a severe convulsion in the evening.

On the morning of the 10th, he had stiffness of the jaws, with pain in the back of his neck, and his mouth began to assume a tetanic grin. He was given milk and beef-tea, and five ounces of brandy during the twenty-four hours.

On the morning of the 11th there was marked opisthotonos with trismus, accompanied with great difficulty of swallowing, which began the evening before. His skin was hot, temperature 102° Fahr.;

his pulse 133, and his breathing thirty-two per minute. A teacupful of beef-tea was ordered every two hours, alternately with milk, to be taken day and night: and eight ounces of brandy in the twenty-four hours. He had a convulsion during the night.

In view of the excellent effects obtained by the use of nitrite of amyl in epilepsy, angina pectoris, etc., it was determined to try the virtues of the same drug on the contraction of the muscles in this case of tetanus, and to try it alone, without the intervention or administration of any other medicinal agent. Nitrite of amyl had been used previously in only three cases of acute tetanus, and each case terminated successfully; but other and well-known agents were at the same time administered. This case is the first in which amyl-nitrite has been used alone, and successfully, and its action recorded. It was first administered on the evening of the sixth day after the accident, and about forty hours after tetanus first discovered itself. Before the three drops had half evaporated, the heart's action became more quiet; and at each inhalation of the amyl afterwards it was generally observed to have a quieting effect on the heart's action. Towards the latter part of the treatment the pulse was among the eighties, although on giving the patient five drops on April 4, six days after he had ceased to inhale five drops twice daily, the heart's action was 132 and tumultuous. The eyes were suffused; the skin of the face and neck became very much congested; indeed, the whole surface of the body was more or less congested; but this soon passed away when the amyl was withdrawn. The three drops had scarcely begun to cause congestion when there was evinced a tendency to gape, and a few days afterwards gaping and yawning both took place at each inhalation until the administration of the drug was discontinued. This gaping and yawning was produced in each subsequent administration of the drug, which was given twice daily. A marked improvement was at once manifested in all his symptoms.

On the 14th, as he had another spasm, the dose was increased to five drops twice daily.

The amyl in the hospital giving out on the morning of the 18th, it was not replaced until the evening of the 20th. During this time he grew rapidly worse; the opisthotonos and the risus sardonius both returned, and his pulse and temperature rose rapidly. On recommencing the inhalation of nitrite of amyl he felt better almost immediately, and from that time progressed steadily to complete recovery.

On March 29, forty-six days after the first dose of nitrite of amyl was given, the patient appeared to be perfectly well. He could walk about, and eat and drink, and enjoy himself in every way as before the attack, except having a feeling of weakness. The nitrite of amyl was now discontinued; he had inhaled one ounce.

GLASS ON VENTRAL HERNIA.—In the *New York Medical Record* of Sept. 10, a case of traumatic ventral hernia is described by Dr. R. George Glass. E. S., fifty-eight years of age, was admitted into Bellevue Hospital, May 25, 1875, and gave the following history. He was working in a factory, filing metallic plates, and found it very convenient when at work to rest the material to be worked on the bench, and hold it firmly by pressing against it with his abdomen. This practice (he being a new hand and working hard) made him very tender and

sore in the abdominal region. In the month of October, 1874, shortly after beginning this work, he found a circumscribed point of tenderness in the abdomen, midway between the umbilicus and pubes, and in the median line. The following day it became worse, and in a few days ended in an abscess, which was opened by a physician. With the pus which followed came a few inches of intestine. At the end of six weeks he had recovered, and resumed work at his trade.

On the morning of the day of admission he was working on a machine run by hand. Projecting from the front of this machine, about three feet from the floor, was a dull piece of iron, in the form of a spike. Against this the patient, while suddenly leaning over, struck his abdomen, causing a rupture of the walls, and a protrusion of intestines.

On admission, the patient suffered considerably from shock and felt very weak. Before being admitted to this hospital, several attempts had been made at reduction of the hernia, without success—once under the influence of an anæsthetic. He had also taken a hot bath. Examination of the abdominal walls showed a loop of intestines, thirty-five or forty inches long, protruding from an opening about an inch and a half in length. This opening had taken place in the cicatricial tissue, in the site of an old abscess, which extended from the umbilicus downwards, in the median line, to the pubes. The wound was situated lying in a vertical direction, and occupied a position half-way between these two points. The intestine was deeply congested; and at one point, near the extremity of the loop, there was a dark discolouration, which looked very much like gangrene. Bloody serum exuded from the surface of the intestine.

The patient was anæsthetised, and, after the gut was washed, an attempt was made to reduce it, which was ineffectual, owing to the swollen condition of the intestines and the cicatricial rigidity at the opening. The upper part of the wound was made larger by the introduction of a hernia knife—care being taken to thrust the finger in between the peritoneum and abdominal wall, so as to avoid injury to the former—making an incision about an inch long; and, after stretching the wound with the fingers, the hernia was reduced. The wound was then closed by silver wire sutures and the patient kept moderately under the influence of opium for four or five days. He was discharged cured in eighteen days, with orders to wear an abdominal support.

LA GARDE ON ASPIRATION OF THE BLADDER.—In the *New York Medical Record* for September 4, a simple method of aspirating the bladder is described by Mr. Louis A. La Garde, as follows.

On July 10, 1875, a Mexican teamster, thirty-four years of age, entered the Post Hospital, with retention of urine of thirty-six hours' standing, resulting from organic stricture of the urethra. He was put on opium, and given hip-baths frequently during the first six hours after his admission. Catheterisation was attempted, but failed. He refused to submit to external perineal urethrotomy, which was urged as the only means of relief, in the absence of any of the modern instruments, for the relief of both the stricture and retention. There being no aspirator, and the opium and hip-bath treatment having failed, the case resolved itself into one of rectal or suprapubic puncture of the bladder. A happy idea occurred to me, which I received from my friend,

Professor Griffith, of Kansas City, in conversation last winter. I contrived an aspirator by means of a vacuum created in a quart bottle, into which was poured half an ounce of chloroform, allowed to evaporate by heat in a water-bath near the boiling point. While the last of the chloroform was evaporating, the bottle was stopped with a tight-fitting cork, through which a cannula was tightly adjusted. I attached a piece of India-rubber tubing, twelve inches in length (from a Davidson's syringe), to the end of the cannula, and fixed a hypodermic needle in the other end of the tube. Having everything ready, I thrust the needle into the bladder, two inches above the pubes, in the linea alba. From the fact that the bottle was still warm, and the remaining chloroform, in a state of vapour, occupied the space in the vacuum, the urine did not flow for perhaps ten minutes; but as soon as the condensation of vapour commenced to take place, the urine was seen to come through the cannula, at first drop by drop, and then in an uninterrupted stream. It continued to flow thus until the bottle lacked not more than two cubic inches of being full. The amount of urine removed measured two pints. The morning following the operation the patient passed urine through the urethra; and later on in the day his condition was so much improved that he considered himself well, and insisted on leaving the hospital.

J. MILNER FOTHERGILL, M.D.

VAN BLAEVEN ON THE USE OF SHEET LEAD IN SURGERY.—Dr. Van Blaeven, in an article in the *Archives Médicales Belges*, April, 1875, enlarges on the great advantages to be obtained in surgery, and especially in military surgery, by the use of dressings made of sheet lead. The dressings are thus made. The sheet of lead to be used is of the size and thickness of a sheet of good writing paper; it costs from ninepence to tenpence the pound, and does not require any special preparation. It is easily cut with surgical scissors, and if it be necessary to increase the stability of the severed leaf, the edges are folded over like a hem, with the back of the scissors. In some cases it is advisable to cut the dressing out of a sheet of lead twice or thrice doubled. The bandage is always fixed by strips of adhesive plaster only; for this purpose the plaster must be less brittle than it usually is, so that the strips may adhere immediately without the intervention of the heat of the skin. As a general rule, the apparatus should, if well made, reproduce as exactly as possible the form of the portion removed, mould itself perfectly to the wounded portion, overlap the periphery of the wound by about an inch and a half, and hold the subjacent parts equally. All the joints should be packed with morsels of tow, and finally the apparatus should be firmly fixed. This method of dressing is particularly suitable in the following cases:—Crushing of the fingers or toes; carrying away of any fleshy part; ablation of a part of the ear or nose, as by a bite, sabre-stroke, etc.; deep contusion with consecutive destruction of the tissues through gangrene of the mortified portions; ingrowing nails; deformity of the extremities, either congenital or consecutive, as webbed fingers, contractile cicatrices caused by burns, etc.; and compound and comminuted fractures. Dr. Van Blaeven remarks that the long-prolonged use of lead, especially when the skin is in process of regeneration, gives rise to excessively obstinate eczema, which has been observed though not explained. When this complication supervenes, the foil dressing must be

disused, and the cure finished by nitrate of silver and strips of diachylon plaster. It sometimes happens that in some subjects the flesh is apt to become covered with a shining pellicle, the granulations become weakly, lose their freshness and elasticity; this inconvenience is remedied by strong and repeated applications of nitrate of silver.

LETIÉVANT ON REMOVAL OF CANCER OF BREAST BY THE ACTUAL CAUTERY.—A woman, aged fifty-seven, came into M. Letiévant's wards for a tumour of the breast. This tumour, which was diagnosed as hypertrophic, presented an extraordinary development of the subcutaneous veins, and made the chances of hæmorrhage much to be dreaded. M. Letiévant, therefore, made the incision of the skin by the actual cautery, after which, the skin being detached, the tumour was enucleated. The incision made by the iron presented the form of an ellipse seven inches long and two and a third wide. The wound did not bleed; the cavity was filled up with dossils of lint steeped in Pagliari's solution. The wound gradually decreased, and progressively became almost linear. The patient was attacked by erysipelas when the wound was nearly cicatrised, but finally recovered. In the course of a discussion on this case, at a meeting of the Société des Sciences Médicales of Lyons, M. Icard declared that erysipelas was wrongly stated to be unfrequent after the use of the actual cautery, of which the above case is the proof. M. Laroyenne thought that the burn produced in this case might be the cause of this complication. M. Letiévant called attention to the fact that at that time an epidemic of erysipelas was in full activity, and added to his communication that the afferent vessels of the tumour were twisted and not tied. He believed that arterial torsion will be substituted for ligature. He has twice twisted the femoral artery in two amputations of the thigh. M. François related, in opposition to the practice of torsion, the case of a soldier who died from hæmorrhage after resection of the scapula, the arteries having been only twisted. In this case the operator was Langenbeck, when he was at Orleans in 1870.

CUIGNET ON CAPILLARY PUNCTURE OF THE INTESTINES.—Prompted by a case of peritonitis, with excessive tympanites, where capillary punctures with aspiration did not produce any immediate results, Dr. Cuignet has made a series of experiments on the dead body on aspiratory punctures. He arrived at the following results, tabulated in the *Bulletin Médical du Nord*, March 1875, p. 126.

1. The puncture should be made by imparting a rotatory movement to the needle, and holding it between the two fingers at the surface of the body.
2. The moment when the needle reaches the gaseous cavity is immediately perceived, as well as that on which it touches the opposite wall; the exact idea of the dimensions of that cavity is thus obtained.
3. The gas does not escape spontaneously, however much distended may be the cavity in which it is contained, and it is necessary to make aspiration so as to withdraw it.
4. Only the loop which is punctured empties itself, and it is necessary to puncture all the distended loops to obtain any notable relaxation.
5. Each punctured and flattened loop is replaced by the two on each side of it, above and below, which keep up the tympanites in the same region, so long as they are not emptied.
6. The gas only, or the gas and the diffuent matter of the intestine, may be evacuated as

may be desired, by graduating the depth to which the needle is inserted. 7. Finally, it is prudent to evacuate the liquid in the vicinity of the puncture.

WACKERHAGEN ON PLASTER OF PARIS SPLINTS.—Dr. C. Wackerhagen publishes, in the *New York Medical Journal* of September, a new method of making plaster of Paris splints. The displacement having been rectified, and the limb held in position by assistants, the latter is smoothly bandaged with cotton-wadding, prepared in the form of an ordinary roller; a flannel bandage, spread with dry plaster of Paris, and rolled, is soaked with warm water (to which about two fluid ounces of saturated solution of sulphate of potassium may be added) and applied to the limb, over the wadding, by circular and reversed turns. One layer of the flannel applied in this way is thought amply sufficient for support.

The author continues as follows. 'If it be desired to employ lateral splints, the dressing should be cut in the median line of the anterior and posterior surfaces. If antero-posterior support be preferred, it should be cut through the lateral surfaces. The splints should now be varnished on their inner and outer surfaces with shellac, or this preparation may be applied to the outer surface before removal. The shellac seems to permeate the dressing sufficiently to increase the strength of the splint, and at the same time renders it slightly flexible instead of brittle, as is the case when plaster of Paris is used alone.'

GUILHEMBERT ON EXTERNAL SYMPTOMS OF STRICTURE OF THE URETHRA.—Dr. Guilhembert studies in his *Thèse de Paris*, 1875, those structures of the urethra which, not being foreshadowed by troubles of micturition, dysuria, etc., always show more or less intense blennorrhagia. Others may give rise in the first instance, and without having given other signs, to acute or chronic orchitis, urinary abscesses, infiltration of urine, or to vesical catarrh. Thus, in presence of these different accidents, the information afforded by patients must not be held as sufficient; and even in the absence of all functional trouble with regard to the urinary passages, it is necessary to proceed to the exploration of the urethra by suitable means, of which the best is the *sonde à boule*.

RECENT PAPERS.

- Cases of Polypus in the Larynx. By Dr. A. Haslund. (*Hospitals-Tidende*, November 3.)
 On Occipito-aloïd Torticollis. By Dr. Dally. (*Bulletin Général de Thérapeutique*, October 30.)
 The Early Recognition and Treatment of Lateral Curvature of the Spine. By T. Carr Jackson. (*The Medical Press*, November 17.)
 New Modification of the Plaster-Bandage. By M. A. Zsigmondy. (*Le Mouvement Médical*, November 20, 1875.)
 Unexpected Accidents in the Operating Theatre. By Dr. Brochin. (*Gazette des Hôpitaux*, November 20.)
 Three Cases of Popliteal Aneurism. By Mr. E. S. O'Grady. (*Dublin Journal of Medical Science*, November, 1875.)
 Compound Congenital Cyst of the Neck. By M. Gosselin. (*France Médicale*, November 27.)
 Subhyoidæan Ranula or Sero-Mucous Cyst of the Neck cured by a single Injection of Chloride of Zinc. By Dr. Panas. (*L'Union Médicale*, November 27.)
 On the Treatment of Epithelioma by Arsenical Caustic. By Dr. Neucourt. (*Archives Générales de Médecine*, November, 1875.)
 On Tendinous Blennorrhagic Synovitis. By Dr. Maymon. (*Ibid.*)
 A Case of Traumatic Tetanus treated with Chloral Hydrate and Bromide of Potassium: Recovery. By Shain Lall Mulleck. (*Indian Medical Gazette*, November 1.)

Femoral Aneurism cured by Direct Compression whilst the Patient was taking Active Exercise. By Dr. Beach. (*Boston Medical and Surgical Journal*, October 21, 1875.)

Section of the Latissimus Dorsi. By Dr. Sayre. (*Philadelphia Medical and Surgical Reporter*, October 23, 1875.)

Fracture of the Frontal Bone with Driving-in, from the Kick of a Horse: Preventive Trephining. By Dr. Schalck. (*Gazette Médicale de Strasbourg*, November 1, 1875.)

Strictures of the Rectum. By M. Le Dentu. (*Gazette des Hôpitaux*, November 4.)

On the Poisons which Interest the Surgeon. By Dr. Van Buren. (*New York Medical Journal*, November, 1875.)

A Case of Diffused Melanosis. By Professor Dolbeau. (*La France Médicale*, November 13.)

On the Pathology and Operative Treatment of Hip-Disease. By Mr. Thomas Annandale. (*Edinburgh Medical Journal*, October.)

A New Method of Controlling the Velum Palati and Enlarging the Pharyngo-Buccal Aperture in Rhinoscopic Exploration. By Dr. Philip S. Wales. (*New York Medical Record*, November 27.)

The Treatment of Aneurism by Compression. By Mr. James B. Wharton. (*Dublin Journal of Medical Science*, December, 1875.)

On Deep Phlegmons of the Neck or Adenoids which spring from the Carotid Glands. (*Le Mouvement Médical*, December 4, 1875.)

PSYCHOLOGY.

REY ON LOCOMOTOR ATAXY.—The *Annales Médico-Psychologiques* (September, 1875) contains a paper by M. Rey on locomotor ataxy as observed in connection with insanity, and nine cases of patients admitted into the Asylum of Saint-Anne are given. M. Rey remarks that the complication of general paralysis is the one most frequently found in connection with locomotor ataxy, and that general paralytics, especially in the early period of the disease, show symptoms of ataxy in their attempts to protrude the tongue, in the movements of the eyelids, and in their walk. The numerous symptoms common to the two diseases may render the diagnosis difficult, but the writer is of opinion that there is one characteristic symptom of ataxy which will aid us, viz., the increased difficulty of co-ordinating the movement of walking when the eyes are closed. Nothing of the kind, he believes, is to be found in simple general paralysis. Of the nine cases, three are those of ataxy complicated by general paralysis. The first was that of a man, aged thirty-three, who in July, 1871, had disturbance of vision and strabismus, and soon afterwards agonising pains in the legs and slighter ones in the arms. He walked with difficulty. In November, 1872, his memory and intellect were affected, and he had attacks with loss of consciousness without convulsions. These were followed by violence; and in May, 1874, he was admitted into the asylum with well-marked symptoms of general paralysis, loss of intellect and memory, ideas of contentment alternating with those of hypochondria, periods of calm, and periods of maniacal excitement. The second was a man aged fifty-five, who had been treated in various hospitals during fifteen years for locomotor ataxy. Only a year before his admission did he manifest any mental symptoms. He was loquacious and self-satisfied with delusions of ambition, had solved the problem how to pay the national debt, and possessed millions. His speech was embarrassed and his tongue trembled. He was admitted in April, 1872, and died in June, 1873, in a congestive attack. Besides the ordinary *post*

mortem appearances of general paralysis, there was marked sclerosis of the posterior column of the spinal cord, and in the lower portion the commencement of sclerosis in the posterior portion of the lateral columns was perceptible. The third was a man aged thirty-five, who had been compelled to serve by the Commune, and was afterwards imprisoned, but finally acquitted. On returning home he complained of pains in his legs and difficulty in walking. He then had an attack with loss of consciousness, and was soon afterwards admitted into the asylum, in Nov. 1873. He had a difficulty in walking and pains in the legs. His mental faculties were weakened without delusions. His speech was embarrassed, and he had ambitious ideas of what he was going to do in his profession. At the age of nineteen he had syphilis with secondary symptoms. In all these cases M. Rey believes the locomotor ataxy to have preceded the paralysis. The other cases presented the disease complicated by mental affection, but without general paralysis. One was a woman, aged thirty. Five or six years previously she had begun to feel pains in her legs, with a burning sensation in the spinal region. She then had defect of sight and double vision. Three weeks before admission, she was unable to walk without assistance. Four or five months ago she had shown weakness of intellect and loss of memory, and when in the hospital of St. Antoine she had hallucinations, and cried out in the night, and was therefore sent to the asylum in Nov. 1874. She left it in May 1875, both the bodily and mental symptoms being relieved, but with pains and cramp still remaining in the legs. She could walk, but with difficulty. A fifth case was that of a man aged fifty. In 1871 he felt pains in the legs while in America. These attacked the whole of the inferior extremities, and gradually prevented his walking. He entered the Charité in June 1874, and then showed mental symptoms, delusions of persecution, and poison, with hallucinations of sight and hearing. He was transferred to Saint-Anne in October 1874, and in February 1875 the mental symptoms were unchanged, the ataxic symptoms being perceptible in the upper as well as the lower extremities. A sixth, male, aged forty-three, had syphilis at twenty-five, and was a masturbator at seven. At thirty he went to St. Petersburg, and, after residing there seven years, symptoms of ataxy showed themselves in pains in the lower limbs and cramps in the feet and hands. Sight was also impaired, and afterwards the power of walking. He followed his employment till June, 1874, having returned to Paris in 1867. He was admitted in November, with delusions of having committed great crimes, and hallucinations of sight and hearing. He was discharged in March, 1875, improved both bodily and mentally. The seventh was also a man, aged fifty-nine, who had delusions of persecution with hallucinations, and refusal of food; this passed away in a fortnight, and he was able to relate his history. He had been a soldier, had drunk, and contracted syphilis. During the siege, in 1871, after being exposed to damp, he had felt severe pains in his legs and his walking was impaired. Two years afterwards his sight failed, complete blindness ensued, and the mental symptoms supervened upon the latter. Number eight was a male, aged forty-four, who had served in the Crimea and Italy, and was a drinker. Eight years ago he awoke one morning with his legs paralysed. He partially recovered, but walked with difficulty. At the end of 1874 his sight began to fail,

and he soon became quite blind. His memory was defective, and he was admitted in March, 1875, in a state of dementia. The ninth was a man aged forty, who at twenty had had syphilis. For ten years he had had pains in the limbs, followed by dimness of vision, strabismus, and diplopia. In June, 1875, he was admitted in a state of melancholia, with impulse to violence. He suffers agonising pains in the lower extremities and twitchings. His sight is much impaired, the pupils are unequal. He cannot walk without assistance.

HOSPITAL ON EROTIC MANIA: DISEASE OF THE CEREBELLUM.—Dr. Hospital, physician of the Asylum at Clermont-Ferrand, relates (*Annales Medico-Psychologiques*, September, 1875) the case of a woman of thirty-four years of age, large and robust, who shortly after she became a widow showed signs of insanity, religious melancholia. One of her brothers was at the time under restraint. She left home and wandered about, and then came to Clermont-Ferrand with the idea of going to live with the Capucin Fathers. She entered the wrong house, and, being arrested, she declared her intentions in such a manner that there was no doubt of her insanity, and she was sent to the Asylum. She was almost imbecile, and scarcely noticed where she was, but constantly insisted on going out for the purpose already mentioned. Sometimes she would behave properly in order to gain her release. She would then become sulky when she failed. Two years later she became quieter and remained all day crouched in a corner; would not answer questions, but muttered continually to herself. Later she refused food, and succumbed to an attack of pleurisy about two years after her admission. The cranium was normal, as well as the dura mater. The arachnoid was filled with gelatinous serum. The cerebrum was without any distinct lesion, but in the right lobe of the cerebellum in the centre, towards the posterior and inferior region, there was a patch of softening of the size of a nut. The substance was in a state of pulp, and easily removed by the handle of a scalpel.

G. FIELDING BLANDFORD, M.D.

BROWNE ON ARACHNOID CYSTS.—To the current number of the *Journal of Psychological Medicine*, Dr. Crichton Browne contributes a paper on arachnoid cysts. After describing a more than typical—in fact, a very strikingly marked—case of this affection in a male patient, in the West Riding Asylum, in which these pathological products pressed upon both cerebral hemispheres with a weight of thirty-nine grammes, he proceeds to give some striking statistics founded upon the reports of no less than 1,240 *post mortem* investigations. Out of these cases, fifty-nine were due to arachnoid cysts—forty-three occurring in males, and sixteen in females, so that the liability of the male sex to this affection appears to be nearly three times as great as that of the female. In nearly one half of the cases recorded, general paralysis was the cause of death; and this latter occurred, as might be expected, in nearly one half of the cases, between the ages of thirty-five and forty-five. The left side of the brain, moreover, appears to be the more chosen site of the morbid change.

It has been established beyond all doubt by numerous observers that the cysts in question result from extravasation of blood, and that they are not due to an organisation of lymph poured out during an arachnitis. Sperling has artificially caused ana-

logous morbid products in the brains of rabbits by injection of fresh blood between the dura mater and the arachnoid membrane. In the cephalhæmatomata of infants an origin and changes may be discovered similar to those which take place in the intracranial hæmatomata of adults. Further than this, in the othæmatomata of the insane a connecting link seems to exist between the arachnoid cyst of the lunatic, and the bloody tumour beneath the scalp of the newly born infant.

It being granted, then, that arachnoid cysts are of the nature just hinted, the point to be determined is the source of the hæmorrhage. Some hold that it proceeds from the ruptured vessel of a false membrane lining the dura mater, resulting from a pachymeningitis; while, by others, it is thought to come from the vessels of the dura mater itself. Neither of these views is satisfactory. As the cysts never appear until the disease is far advanced—until much wasting of the brain has taken place—it is fair to infer that they are drawn from some of the vessels which become over-distended when wasting is established. The vessels which are most affected are the great veins running over the frontal and parietal lobes, returning blood to the longitudinal sinus. In support of this, the case of a female, who died at the age of fifty-three years, is cited in full. It is generally asserted that the effusions of blood giving rise to the cysts in question are traumatic in origin. According, however, to Dr. Crichton Browne's observations, the cause alleged plays but a small part in the causation of these products, but the spontaneous laceration of a vessel following upon a cerebral hyperæmia, which is very likely to affect such patients as are the subjects of the disease in question, may reasonably be cited as an efficient cause.

The treatment of arachnoid cysts must be, it will be concluded, a purely prophylactic one; but should it be known that an effusion of blood is actually taking place, this process might be checked by the administration of ergot and purgatives. When the blood is effused, but little remains to be done; though iodide of potassium may be tried, as a forlorn hope.

J. C. GALTON.

ROBERTSON ON UNILATERAL MENTAL PHENOMENA.—In the *Glasgow Medical Journal* for October there is a communication by Dr. Alexander Robertson on this subject. He writes: These unilateral phenomena consist of illusions and hallucinations, and possibly also of the peculiarities supposed to be due to the separate and independent action of the hemispheres. The first two have received but little notice in works on psychology published in this country. More consideration has been given to them by French writers. Thus Briere de Boismont, in his book on hallucinations, refers to Calmeil's observations on the phenomena in question, and more particularly to those of M. Michéa, who gave them the name of 'hallucination dédoublée.' Gall, too, relates a case of a minister of state in Vienna, who was constantly hearing insulting expressions on the left side, so that he was very often turning his eyes in that direction to see whence they came, although perfectly convinced on the right side of his head that they were delusions of the left side. Griesinger, too, had a patient in whom there were hallucinations of hearing on the left side throughout the duration of the insanity. A similar case is related by Schroeder Van der Kolk. It might seem that these unilateral sensorial disturbances were very rare,

but the writer thinks their rarity rather apparent than real. He consequently made a careful examination of 250 insane patients with the following results. Thirty-four patients were found with well-defined illusions or hallucinations of one or other senses. But there were many others where these special phenomena were so combined with other general delusions, or whose intellect was enfeebled, or who were obstinate or reticent, that trustworthy information could not be obtained from them. With regard to causation in these thirty-four cases, in fifteen the disorder was clearly due to alcohol; in five, to domestic trials; in two there was an hereditary tendency, and in ten the cause could not be determined. In thirty-one of the cases there were heard imaginary voices or unreal sounds. In twenty-nine there existed either at the time optical illusions or the memory of such illusions. Two suffered from disorders of taste, and in one there was also disturbance of smell; both these patients had auditory and optical hallucinations as well. In fourteen there were disorders of general sensation. Of the thirty-one cases of auditory disturbances, in five they were only heard in the left ear; in other five more in the left than the right; and in one only on the right side; while two stated that they were more distinct on the right than on the left side. Some cases are then given illustrating the subject. The number of cases in which the left side is the one affected, not only in Dr. Robertson's own cases, but in the cases quoted by him, is very large. As to the pathology of these cases, the portion of nervous system associated with the delusion is probably affected as it is in bilateral sensory disturbances. In some cases it would appear that the disease commences in the sense-organ, and thence gradually extends to the highest cerebral ganglia.

J. MILNER FOTHERGILL, M.D.

RECENT PAPERS.

- The Use of Tobacco as a Cause of Insanity. By Dr. W. Dickinson. (*The St. Louis Medical and Surgical Journal*, November, 1875.)
 Skae's Classification of Mental Disease. By Dr. Crichton Browne. (*The Journal of Mental Science*, October, 1875.)
 Can Unconscious Cerebration be proved? By Dr. W. W. Ireland. (*Ibid.*)
 On Mental Strain and Overwork. By Dr. F. Mac Cabe. (*Ibid.*)
 Diseases of the Nervous System. By Dr. Boyd. (*Journal of Psychological Medicine*, October, 1875.)
 On the Legislative Measures to be taken to Protect Society against the Violent Acts of Lunatics and Epileptics acknowledged to be Dangerous. By Dr. Gallard. (*L'Union Médicale*, October 21.)
 The Domestic Treatment of Insanity. By Dr. Stanley Haynes. (*Practitioner*, November, 1875.)

MEDICAL JURISPRUDENCE.

ULLERSPERGER ON CREMATION.—Some observations of interest open a paper on cremation by Dr. Ullersperger (*Friedreich's Blätter für Gerichtliche Medizin*, July and August, 1875). After referring to the serious importance which all religious bodies attach to the disposal of their dead, the author states incidentally that in Germany the use of crypts, except in special cases, is forbidden by law. He then shows that the question is not a new one, inasmuch as the abuse of churchyards was struggled against by Johann Peter Frank in the last century. After

referring to the general opinion of medical and other reformers as to the unhealthiness of graveyards, he shows that cremation is an effectual safeguard against all the evils of inhumation, and instances the permissive clause introduced by Professor Maggiorani into a sanitary bill passed in Rome in 1873, by which families have the option of burning in place of burying their dead. He then lays down his main proposition that 'Cremation is the only reasonable and quite harmless mode of disposal of the dead.' As to the unhealthiness of graveyards, a report of eight professional men appointed by the Conseil d'Hygiène publique du Département de la Gironde to investigate the question makes the following recommendations.

1. That there should be only one graveyard of the minimum size of 100 hectares, of which each religious denomination should have its special portion.

2. That it should be distant from the town, but not more so than twelve kilometers.

3. That the concessions hitherto allowed of embalming or burying in lead coffins be withdrawn, since these means have conduced even more than vaults to the preservation of corpses.

4. That no further renewal of concessions be made as to ground.

5. That the period of rotation in common ground be fixed at from fifteen to twenty years.

6. That no dead-houses be set apart for cases of simulated death. The period of time hitherto allowed for discovery is sufficient.

7. That in order to settle this question two visits be made by the medical man, the first under circumstances as they arise, the second before burial.

8. That exhumations be as little as possible allowed, and then only at stated times (from October 1 to April 1), except where they may be necessary for the requirements of justice.

9. That every effort be made to make graveyards as pleasing as possible.

10. That the erection of monuments be regulated by law, so that free ventilation and the absorption of the products of decomposition be not interfered with.

11. That the planting of trees, shrubs and plants be regulated.

12. That graves no longer in use be planted with trees and shrubs, and that they be not used for common burial before forty years have elapsed since the last interment.

13. That no transference of burial-places be made without the authority of the health-bureau, so that no danger arise to the public health from this cause.

14. That private property in graves should be sanctioned as little as possible; and finally interdicted entirely.

15. That the medical determination of cases of death be made practicable for the whole parish. That facilities for cremation be given.

16. That the size, distance, and number of graves, and so on, be officially regulated.

17. That metal shells intended for the conveyance of corpses undergo a searching examination, so that infection by them of the conveying carriages may be prevented.

These seventeen recommendations, involving, as the author thinks, clumsy and cumbrous machinery, are not to be compared with the simple and safe method of cremation. The next proposition of the author is: 'That no opposition whatever can be

made to cremation.' Like earth-burial, there are different modes of cremation.

Thus we have: 1. Cremation in open fire: 2. In more or less open ovens where the corpse is in immediate contact with the burning material: 3. Cremation in closed stoves where the corpse is in contact with the heated gases evolved, not with the burning material itself: 4. Cremation in muffles (*Muffeln*), where the corpse is consumed by heated air.

Siemens's stove has been recognised as the most suitable. It can consume a body in about five hours, the temperature rising to from 600° to 800° Cent. (1112° to 1472° Fahr.). A corpse requires from fifteen to twenty years to moulder in the ground. As to cost, no man can for a moment compare the charge of 400*l.* to 500*l.* which a Siemens's stove costs, with the price of a graveyard. If next we think of what happens in churchyards, the tendency of population to accumulate in centres, and the consequent heaping up and over-heaping of corpses, with their deadly influences on dwellings, water, soil, and worst of all, the very air, we must recognise that cremation is not only advisable, but that it is absolutely necessary. Epidemics must owe, if not their origin, their spread and continuance, at least, to such causes; while all these evils disappear before cremation. The disposal of the dead must not be suffered to contaminate or endanger the living.

As to the religious and affectional disposal of the dead, no feeling of human nature need suffer; for (1) all the offices and customs of the church, affectionate honour to the deceased, tenderness for the feelings, etc., remain undiminished and uninterfered with; (2) the corpse does not become a source of infection, and leaves no dangerous residua, while the remains offer the most beautiful opportunity for the exercise of the tenderest feelings of the heart; and (3) from beginning to end cremation is associated with no dangers to the performers of it, nor to persons or families dwelling near.

The author next refers to various examinations into the effects of water impregnated with products of decomposition from graveyards; among others, to those of Dr. Aijr in the case of the hamlets of Rotondella and de Bollita. Reference is also made to Professor Selmi's observations in Mantua on the facility with which putrid fermentation and the appearance of bacteria are induced in a solution of glycogen on the addition of matter which he had traced to originate from graveyards.

The account of a case in which a Jewish merchant had buried his wife, but, on opening the grave with the permission of the Rabbi, to his horror discovered that the face-handkerchief was smeared with blood, and that there were other marks of a struggle which indicated that the woman had been buried alive—is referred to, with the remark, that, had cremation been resorted to, the unfortunate husband would have been for ever spared the pain of knowing what had happened. Other remarks of historical and general interest close this paper.

A PHYSICIAN OF THE OLD SCHOOL.—*L'Union Médicale* of November 18 asserts that at Benemaclet, in Spain, there is a physician who has attained the ripe age of 105 years, and is still in practice. This centenarian has a wife who obediently lives as long as her husband, being in her 103rd year.

VON HOLTZENDORF ON MURDER AND CAPITAL PUNISHMENT.—In a paper entitled 'Murder and Capital Punishment: Researches in Criminal Politics and in Psychology,' derived from lectures delivered in the Universities of Berlin and Munich, Franz von Holtzendorf gives an exhaustive review of the relations of capital punishment, and deals with the subject under the following heads.

1. The punishment of death, advocated by some as the most terrifying preventive of murder, is shown not to be so. Piety, patriotism, honour, as also the strongest temptations to crime themselves, outweigh it; for the state only threatens an evil which, in the course of things, must arrive sooner or later. And the degree of terror which such a menace implies depends (a) on the greatness of the evil; (b) on the probability and certainty of its occurrence; (c) on its proximity in time; (d) on the probable success of a well-planned defence; and (e) on the consideration whether fear of death or contempt for it is the more powerful motive.

2. If it be said that execution is more terrible than natural death by reason of its frightful surroundings, it is answered that this terror acts only on noble natures, and that any ignominious punishment would have as terrifying an influence on them as capital punishment.

3. The certainty and probability of the incidence of the evil. There is always room to hope for non-detection of the crime, non-discovery of the criminal, acquittal, or pardon.

4. What are the chances of conviction and condemnation? Murderers do not often look so far forward as this. The larger number of murderers are apprehended, but a minority take subtle steps (as by disfiguring or destroying the corpse, or by using such means as make it doubtful whether murder, suicide or misadventure has taken place, or by the suggestion of an *alibi*, or simulating insanity, etc.) to render detection difficult. And even after apprehension there are further chances of escape, since juries demand stronger proof in cases of murder than of other crimes; and in France, for instance, there is the rider of 'extenuating circumstances'; and in Germany, where this is not allowable, a verdict of 'not murder' is returned, when the proof is not sufficient.

5, 6, 7, 8. Danger of death, as something far distant, does not terrify the criminal. It is, in fact, a far more powerful influence on those who put the law in force; judge, jury, prosecuting and defending counsel, being far more afraid of participating in a wrong punishment, than the criminal is that it will fall on him. As for the facility with which criminals feel terror (*Abschreckungsfähigkeit*) the non-commission of crimes often occurs from want of motive, from want of criminal disposition, from a feeling of moral sense, honour, and rectitude, from want of opportunity, or from fear of punishment. But the last motive is the least potent. If the disposition to maintain order were not supported by the strength and universality of the moral motive, even the code of a Draco would be powerless to prevent crime. And if to-morrow murder were declared free from punishment, the consequence would by no means be universal murder, since respect for life does not in civilised countries require such help to maintain it.

9. As little powerful is punishment as a terrifying influence where the motive to murder is some affront

to honour (duelling for instance) or some love affair (for instance, the desire to die with a lover whom one cannot marry), etc.

10 and 11. Execution either in public or within the prison walls has by no means the terrifying influence that is supposed. For the influence of a public execution depends entirely on the behaviour of the culprit, either contempt on the one hand, or a very dangerous reflection on the modes of justice on the other, being evoked according as the criminal admits his guilt and repentance, or dies boldly asserting his innocence. Then as to execution within the prison walls, this is practically not different from the other, since the press gives full accounts of it, which in turn frequently induce the commission of crimes like those for which the criminal suffers, through the tendency to imitation. The very existence of capital punishment leads men who think they have had enough of life to commit some crime worthy of death in order to undergo the punishment.

12. When blood is shed so easily by capital punishment, the mere fact is calculated to lessen the respect for human life; and that the punishment is a legal one, is no counterbalance of this feeling. All experience shows, on the other hand, that diminishing the severity of punishments is accompanied by a corresponding decrease in the commission of crime.

13. In England the effects of diminished severity of punishment were very noticeable. In 1780 there were 240 persons condemned to death; yet the public insecurity was great. With the mitigation of the extreme penalty to transportation, a corresponding improvement took place in the public security. Theft being punishable with death, and the punishment being quite disproportioned to the wrong, numerous acquittals took place; while, with the abolition of the punishment, a marked reduction in the number of cases occurred.

14. Capital punishment as conducing to public safety. To those who say the murderer is a dangerous person, against whom society has a right to be protected, it is replied that protection does not necessarily involve the death of the murderer, and it is shown from statistics that it is more than doubtful whether capital punishment really prevents the commission of murder.

15 and 16. Society has other means than capital punishment for protecting itself from murderers. Death might have been necessary in uncivilised times, or in exceptional circumstances, as war or foreign invasion, but not in peace. Besides, death prevents any hope of ameliorating the moral state of the culprit, and it is by no means the case that murderers are in other respects the most immoral criminals.

17, 18. Capital punishment in relation to its rightness. The rightness of a punishment depends (1) on heavenly revelation; (2) on the ethical principle of vengeance; (3) on its practical efficiency as expiation or atonement. In reference to the first consideration, neither the Old Testament law of retaliation, nor the metaphorical New Testament 'sword,' can be relied on for the perpetuation of capital punishment in modern society.

19. As to point two, the gravity of a crime depends not only on its objective consequences, but also on the subjective condition of the criminal, and therefore the same crime may be in gravity a very variable quantity. So with capital punishment, since the value of life, and therefore of its deprivation,

varies in different circumstances. The principle of expiation and atonement, therefore, is an impracticable fiction.

20, 21, 22, and 23 are devoted to the agreements and differences between murder and homicide. Premeditation is the main distinction; but premeditation is very difficult to define or prove in many cases.

24, 25, 26. The religious view of punishment as a God-appointed method of expiation of crime is quite antiquated, and, besides, society easily justifies its own conclusions by reference to Heaven. Capital punishment may be wrongfully inflicted, and the fear that this may take place from time to time justifies the desire to abolish capital punishment. The difficulty is not got over by carrying out the sentence only after confession of his crime by the accused, since criminals have frequently falsely accused themselves; and, on the other hand, many who were guilty have never admitted it. The right of pardon can be justified only as a resource against incomplete legislation. In England the number of pardons depends on the state of public opinion for or against capital punishment; in Germany, on the conscience of princes. Since 1870, the German Emperor has not confirmed a single capital sentence.

TOXICOLOGY.

WHITE ON 'IVY-POISONING.'—In the *Boston Medical and Surgical Journal* for September 2, Professor White gives some account of 'ivy-poisoning.' After describing the plants, he goes on to say: 'The virulent principle of these plants (the *Rhus toxicodendron* and *Rhus venenata*) is a volatile acid which exists in all their parts, but especially in the leaves. All persons are not affected by it, but many who can handle the vine, *rhus toxicodendron*, with impunity, are poisoned by the tree, *rhus venenata*, so much more virulent is the latter. Actual contact with the plants is not in all cases necessary for the production of their poisonous effects, on account of the volatility of their active principle; and there is good reason to believe that persons highly sensitive to the poison not unfrequently suffer from passing by places where the vine grows abundantly. The plant is supposed to be most actively virulent during the flowering season in early summer, but cases of poisoning occur with great frequency throughout the autumn, when its leaves take on their seductive colouring. Even in the winter the twigs and stems are often found still alive for mischief by those who handle them.

The peculiar effect of the poison is alike in kind upon all who are affected by it, but varies greatly in intensity. The inflammation it excites upon parts coming in contact or contiguity with it is that of an acute eczema, characterised by the eruption of vesicles of a peculiar lurid or brownish-red colour, which may subsequently burst and exhibit the later phases of this efflorescence, as in other acute inflammations of the skin. In addition, there is more or less of swelling and redness of the parts affected, sometimes to a very marked degree, so that great deformity may thus be produced, and the face of the patient be changed out of all recognition. These changes in the tissues of the skin are accompanied by intense itching and burning, and often great suffering is undergone by the patient in consequence.

Fortunately the affection is of short duration, the acute stage lasting ordinarily but a week or ten days under treatment, and its whole course rarely exceeding three or four weeks. Moreover it is not a dangerous affection, although a person severely poisoned over a large surface may present a frightful appearance to his friends. Its effects, however, are never more than skin deep. The eruption generally shows itself within three or four days after contact, sometimes within twenty-four hours. The period of incubation may, however, be prolonged to five or six days in some cases, and fresh blisters may continue to appear for two weeks or more. No danger of contagion by contact with the eruption upon another person is to be feared. The portions of the body most commonly affected are the hands and face, the parts naturally most exposed to contact; but other parts handled by the former immediately after contact and before washing, may have the poison thus transferred to them and be similarly affected. No scars or permanent injury to the skin or general system are to be apprehended in ordinary cases.

A few words with regard to the treatment of rhus poisoning may not be inappropriate in this connection, especially in relation to the means to be immediately used, those to which the term antidote may be properly applied. The poison, as has been stated, is a volatile acid. An alkali would therefore suggest itself as the most fit agent to counteract its action. Thorough washing of the parts, as soon as possible after contact with the poison, in cooking-soda water, or in strong soap-suds, especially those of soft soap, which contains an excess of alkali, is therefore the best primary treatment. When these or other alkaline preparations are not to be obtained, an abundance of water alone should be used as soon as possible. After absorption has taken place, or the eruption has begun to show itself, less benefit is to be expected from such applications alone. Remedies are then to be used which will best control and shorten the inflammatory process in the tissues of the skin; those, in fact, which are found to be most efficacious in corresponding stages of acute eczema. Among these are some which have a special reputation, as solutions of acetate of lead or sulphate of copper, applied frequently as a wash. Perhaps nothing is better than common black wash used as an evaporating lotion for half an hour at a time, twice daily, the lime water acting also as a chemical antidote, if possibly such action is still in season at this later stage. In the intervals between the applications of these washes the parts may be kept covered with cold-water dressings, with plasters of diachylon ointment, or with a powder of starch and oxide of zinc, according to the rules familiar to physicians for the treatment of acute eczema. By these means the process is checked and shortened, and the sufferings of the patient greatly alleviated.

In conclusion, a brief word of caution is given to sojourners in the country who are unacquainted with these poisonous plants. Avoid any vine or bush growing by rocks, fences, and woodsides, with glossy leaves arranged in threes, and in the autumn any particularly brilliant tree in swampy places, with leaves resembling, but broader than, those of the common sumach.

J. MILNER FOTHERGILL, M.D.

RECENT PAPERS.

Researches on Poisoning by Powder of Cantharides. By M. V. Galippe. (*Gazette Médicale*, June 19.)

OBSTETRICS AND GYNÆCOLOGY.

MILLER ON PUERPERAL FEVER.—In the *New York Medical Record* for August 3, is an article on the abortive treatment of epidemic puerperal fever, by Dr. J. H. Miller. He says: Knowing from long experience that attention to little things frequently makes up the difference between failure and success, I will describe minutely the course pursued in nineteen cases that fell under my observation during the existence of the epidemic.

Upon entering the lying-in chamber and examining its hygienic condition, my first efforts are directed to the proper adjustment of the bed, in order to secure it from liability of being soiled by the discharges—cleanliness being regarded of primary importance. I direct two heavy comforts to be folded upon themselves and placed lengthwise upon the anterior part of the bed, and a sheet folded in the same manner upon the comforts. These will be sufficient to absorb the discharges before reaching the bed proper. Before making a digital examination I wash my hands with soap and water, cleanse my nails thoroughly, and anoint both hands with carbolated oil, and as soon as the labour is completed I remove everything that is soiled and let her down upon a clean, dry bed. I place a large folded napkin, carbolated, under the nates to receive the lochia, and then proceed to anoint her abdomen and thighs with carbolated oil, and place a single cloth saturated with carbolated oil over the entire genital organs. I then order her a glass of whisky-toddy. The carbolated oil was applied as above thrice daily for three days, and twice per day for two days more. It is both antiseptic and antipyretic. A generous diet is allowed throughout.

For the purpose of securing speedy uterine mural condensation, I order fluid extract of ergot in half-drachm doses thrice daily for the first three days, and twice daily for two days longer. I regard it of the utmost importance to have an early contraction and condensation of the uterine walls, in order to close the mouths of the uterine veins, for the liability to puerperal fever is to a great extent owing to the open, patulous condition of the mouths of the uterine vessels, allowing thereby easy ingress to the mycelium of the spores of microscopic fungi or to the shoals of the swarming bacteria, and thus invading and poisoning the whole uterine, peri-uterine, and peritoneal tissues. Secure by all means an early condensation of the uterine walls, and you thereby lessen the liability to puerperal fever in a ratio with the contraction of the calibre of the uterine veins; and with occasional washing the vagina with tepid water slightly carbolated, that condition of the puerperal state which is so inviting to the invading causes is so materially changed and protected as to render her security almost certain, and reduce the danger to zero.

Unremitting vigilance on the part of the physician is frequently the price of the patient's life. One visit every twenty-four hours is not safe practice. Three visits per day for the first three days, and two visits daily for two days more should be made in every case of labour during the epidemic.

The careful employment of the thermometer at each visit, in order to detect the brewing of the coming storm, is of the highest importance.

Perhaps without the use of these precautionary

means those nineteen cases might have passed unscathed through all the fierceness of the epidemic, and, on the other hand, had it been practised more generally, the fatality of the epidemic might have been much more limited. It is only by more extended observation in this direction that we can arrive at just conclusions; for it is only by prophylactic and abortive means that we can expect to do our patients full justice, because in fully established cases the pathological lesions are too grave to be overcome in a large majority of instances.

Notwithstanding the prophylactic means employed, four of the nineteen cases manifested unequivocal evidences of incipient puerperal fever; three upon the second day and one upon the beginning of the third day of their confinement.

The abortive treatment was brought into requisition at the very earliest manifestations of the disease, and with decisive effect.

Quinine is the remedy *par excellence* in the abortive treatment of puerperal fever. It neutralises any toxic action from malaria already in the system; it diminishes pyrexia; it slows the pulse, prevents the formation of pus, and is inimical to the existence of bacteria. Ten grains every four hours I have found to be sufficient, although in one case I gave twenty grains to start with, and with the happiest results; and at the end of twenty-four hours in all four of the cases everything was pleasant and satisfactory. In addition to the above, although I have had no experience with them, I would recommend the use of salicylic acid, both locally and internally, and also the use of thymol. It is my candid conviction that, if these suggestions are implicitly carried out, epidemic puerperal fever will be disarmed of its terrors.

As a corollary to the above, I will formulate the chief points for practice.

1. The most scrupulous cleanliness to be observed by all concerned.
2. Unremitting vigilance on the part of the physician.
3. The antiseptic treatment by carbolated oil, and by salicylic acid and by thymol.
4. The early condensation of the uterine walls by means of ergot.
5. The thrice daily employment of the thermometer.
6. Large doses of quinine in the incipency of the disease.

J. MILNER FOTHERGILL, M.D.

YANDELL AND MCCLELLAN ON BATTEY'S OPERATION.—The new operation of spaying, in cases other than those in which ovariectomy is a recognised method of treatment, is discussed in the *American Practitioner* for October. This is done in an American fashion, namely, giving a report of an interview between two physicians and the operator.

The objects of the operation are described as follows: To stop diseased or pernicious ovulation; to effect the change of life; to revolutionise the whole female economy, and thus throw off an otherwise incurable disease. Dr. Battey suggests, if he does not actually assert, that he confines his operation to cases where life is endangered or where health and happiness are destroyed—cases which are utterly hopeless of other remedy this side the grave.

These statements do not agree with the facts which are found by an analysis of the cases and otherwise. In his first case Battey supposed the ovaries to be healthy, and is still of this opinion. In

all the others, the ovaries showed unmistakable disease. In ten operations, eight ovaries were cystic, the cysts varying in size from that of an orange to that of a cherry. In one case the patient had amenorrhœa, convulsions, recurring hæmatocele, repeated pelvic abscesses, incipient tuberculosis from pulmonary congestions, etc. Several of the cases passed under the head of ovarian neuralgia; several had intractable dysmenorrhœa with pelvic deposits of old lymph; one had ovarian insanity, etc. There is not one of these diseases of cases of which it can be said that they are utterly hopeless of other remedy. Far from it.

Batley prefers vaginal ovariectomy as done by Thomas and Noeggerath, to his former method of spaying by opening the abdomen above the pubes. The operation is simple. The uterus is pulled down and fixed, the peritoneal cavity is opened through the roof of the vagina, the ovary or ovaries pulled down and removed by the écraseur. About ten minutes are consumed in crushing the pedicle. No ligatures or sutures are used, and no foreign body left in the tissues. Ether alone is used to produce anæsthesia. The operation occupies about an hour. The removal of both ovaries is now recommended.

Batley's operation has been done upon eight women ten times, a second operation being resorted to in two cases, to remove the second ovary which had been left. Two women died. This is a mortality as great as after ovariectomy.

Six operations were done in Louisville, and of these we have some notes to indicate the nature of the success in the survivors.

Case I.—The patient is urgent in her demands for the removal of the remaining ovary.

Case II. was operated on a second time, and is Case V.

Case III.—The operation was performed in August 1875. Dr. Leachman reports an entire subsidence of all uncomfortable symptoms. The patient has not menstruated since the operation, although the menstrual molimen has been upon one occasion well marked.

Case IV.—Operation performed September, 1875. The most favourable results are anticipated.

Case V.—Operation performed September, 1875. The coccygodynia is persistent.

Case VI.—No remarks. Probably one of the fatal cases.

As indications of the probable utility of this operations nothing can exceed the unsatisfactory character of these statements. The profession, however, is indebted to Dr. Batley for even the little that is given.

From the recency of Dr. Batley's experience, little value is attachable to his remarks on the menopause which the operation is intended to produce. He says that in most of his cases the full results of the menopause have not yet been developed. This is the work of months or years. In two cases the change seemed to occur at once in all its completeness.

Dr. Batley says that his patients, without exception, lost nothing whatever by the operation. Two, however, lost their lives. Three were alarmingly ill, and in great danger.

Dr. Batley impugns the remarks on his operation by Dr. Matthews Duncan, in his address on opening the obstetric section of the British Medical Association in August last. But he has failed to show any

reason for a modification of what was then and there said.

The profession will look with eagerness for further reports regarding this novel proceeding, and meantime awards to its bold originator and practical advocate a liberal meed of praise.

J. MATTHEWS DUNCAN, M.D.

CHANTREUIL ON CONDITIONS OF THE UMBILICAL CORD INTERFERING WITH PREGNANCY AND DELIVERY.—The undue length of the cord, by imparting to it a greater degree of mobility and making it describe a greater number of circuits, may expose it to compression, either because it coils itself round the foetal parts, or because it is obliged, so to speak, to leave its natural situation (a hollow situated at the anterior part of the fetus and resulting from its rolling round on itself), or because it prolapses.

Dr. Chantreuil, according to an analysis of his inaugural thesis published in the *Archives Générales de Médecine* for September, 1875, sets out by first studying the coiling of the umbilical cord. The coils are often found round the neck, but rarely round the trunk or limbs, which are not often encircled by the cord without the neck also being involved in the coils. The average frequency of these coils is about one in every six deliveries. The predisposing causes are stated by many writers to be excessive length of the cord, excess of the liquor amnii, and small size of the foetus. The determining causes are the undue movements of the foetus and of the mother. The diagnosis of coils may be made by taking note of a certain number of signs, some probable, some presumptive. The first are likewise signs of the shortness of the umbilical cord; sudden retreat of the head, a little hæmorrhage after every pain, pain confined to a fixed point of the uterus, protracted labour, elevation of temperature. The second set of signs are furnished (1) by palpation of the abdomen. Charrier was able by this means to feel a loop of the cord coiled round the back of the foetus. (2) By auscultation. Sometimes beats which are isochronous with those of the foetal heart are heard along the course of the cord. (3) By vaginal examination. The finger alone can seldom reach the coils. The whole hand should only be introduced in cases of absolute necessity. (4) By digital examination of the rectum. Hoake is the first writer who recommended digital examination of the rectum, to diagnose the coiling of the cord round the neck when the head is still impacted. The first finger is introduced into the rectum, pressing on the foetal head until it reaches the neck, when it encounters the coils, which are easily recognised by the pulsations of the cord. But M. Chantreuil justly remarks, that in a great many cases the diagnosis is only made at the moment when the foetal part is expelled, because the cord is then accessible to vision and touch. The prognosis of the coils varies with the presentation. In that of the vertex and face, they are accompanied by compression at the moment of the passage of the head. In the presentation of the pelvic extremity, the prognosis is more serious, because it is impossible to disengage the cord, except during version. Sometimes it is even necessary to cut it. The coils round the neck are the most serious. The prognosis is not necessarily in harmony with the number of turns. If the coils be discovered during pregnancy, premature delivery may be found necessary. Lamolle, Barton, and Albert Adolphe divided the cord during delivery.

M. Chantreuil thus summarises the rule to be followed. (1) There should be no interference during pregnancy; this is a rule without any exception. During delivery, the disengagement of the fœtus should be looked for, and the neck examined with the hand, so as to make certain if there are any coils. If possible, they should be uncoiled; if not possible, they must be cut. (2) If the life of the child be in danger, the forceps should be applied before the expulsion of the head. Coiling in the case of twin-pregnancy requires no special consideration.

When, instead of remaining in relation with the hollow formed by the anterior plane of the fœtus, the cord is rolled up on itself, it runs the danger of being compressed, and death often supervenes without any suspicion of the cause. M. Chantreuil examines these cases under the head of abnormal situation of the cord.

In the fourth chapter of his thesis, he passes in review cases of absolute or relative shortness of the umbilical cord. In his opinion, diagnosis is almost impossible during pregnancy and the first moment of delivery, and can only be made with any precision at the moment when the fœtus presents itself. Prognosis is not a very serious matter for the mother, except in certain abnormal cases, where shortness occasions hæmorrhage by premature detachment of the placenta or inversion of the uterus. In the child, on the contrary, the prognosis is much more serious, as it may succumb, not only in consequence of the tension of the umbilical cord, but also as a consequence of the rupture.

In another chapter Dr. Chantreuil treats of the knots of the cord, which may be simple or complicated, according as their structure varies with their duration. The conditions which favour their production are the length of the cord, the abundance of the liquor amnii, the movements of the mother, and the excessive movements of the child.

M. Chantreuil likewise examines torsion of the cord, distinguishing between a physiological and a pathological torsion. The former consists in turns or fractions of circumvolutions, in which the whole length of the cord is involved. It has no disastrous effect on the fœtus. The second variety of torsion is characterised by a number of circumvolutions only affecting one portion of the umbilical cord, at which point the jelly of Wharton is rare, or even altogether wanting. The size of the vessels is diminished, and their walls are drawn closely together. Whilst these vessels are still permeable, they should be driven up with sufficient force to overcome the obstacle. It will then be easy to understand to what extent the foetal circulation is interfered with during life.

M. Chantreuil considers at what period of pregnancy torsion of the cord supervenes. To answer this question he reports Dobra's statistics, including sixty-four cases. In thirteen fœtuses it occurred at three months, in fifteen at four months, in five at five months, in eight at six months, in twenty-two at seven months, and in one at eight months. This shows that torsion of the cord is not met with in the two first months of pregnancy; it comes on sometimes from the third to the seventh month of gestation; it must therefore be remarked that it is impossible to fix the commencement of the torsion in a definite manner. However that may be, when once the torsion occurs, pregnancy does not go on to the full term. Torsion has no direct effect on the

mother; it acts on the fœtus only; it may not only produce stenoses of the umbilical vessels, but their rupture and that of the entire umbilicus.

The author then proceeds to investigate the anomalies of the insertion of the cord, whether on the placenta or on the fœtus. One of the most interesting sections of the thesis is that relating to the velamentous insertion, that is to say, to that particular mode of inversion characterised by the disassociation of the umbilical vessels, and their distribution to the membranes before reaching the placenta. This anomaly, of which the discovery is erroneously attributed to Benckeser, had been studied by Wurberg in 1773, by Sandifort in 1778, and especially by John Frederic Lobstein, of Strasburg, in 1801. M. Chantreuil, therefore, attributes to these writers, and not to Benckeser, whose work appeared in 1831, the merit of having made velamentous insertion known. According to Hüber, it occurs when the vessels of the cord come into connection with the decidua serotina. This insertion makes abortion with foetal hæmorrhage of likely occurrence, as well as prolapsus, so that its prognosis is always serious for the child. In further sections of his work, Dr. Chantreuil treats of adhesions of the cord, both to the child and to the amnion, of the variations of thickness, of the anomalies of the vessels, and of tumours of the umbilical cord. The adhesions of the cord as a rule are only present in cases of monstrosity. Variations of thickness, either from excess or deficiency, have generally no influence on the fœtus. Anomalies of the vessels and tumours of the cord are often co-existent with adhesions of the placenta.

PINARD ON THE INDICATIONS AGAINST VERSION IN SHOULDER-PRESENTATIONS.—Dr. A. Pinard, in his *Thèse d'Aggrégation*, defines version by external and internal manipulation, and then goes on to describe the method of operation in breech presentation. He then comes to the contra-indications which result (1) from the non-dilatation of the orifice; (2) from the too deep impaction of the fœtus; (3) from a too great narrowness of the pelvis. Amongst the causes which oppose themselves to the dilatation of the orifice and prevent the accomplishment of version, the writer quotes cancer and fibrous tumours of the neck of the uterus. The writer then quotes a certain number of cases in which the too deep impaction of the fœtus prevented version. The retraction of the uterus, the result of fruitless attempts at version or of taking oxytocic medicines, is one of the most formal counter-indications against pelvic version. The author afterwards examines how the accoucheur should proceed in narrowness of the pelvis when there is breech-presentation. In pelvis which are constricted, but still show an extent of 7 to 9 centimètres in their promonto-pubic diameter, version must be performed. But when the diameter is under 7 centimètres it becomes a question what is to be done. M. Pinard separates these pelvis into two categories: in the first he places those which measure from five to six centimètres and a half; in the second, those which measure less than five centimètres. In the pelvis of the first category, M. Pinard admits that version is sometimes possible but extremely difficult. It is only after having bruised, torn, lacerated, even perforated the genital canal, that the cephalic extremity is extracted. If we leave out of the question the labour and fatigue of the accoucheur, and only look to the mother and child,

what is the result? The child is crushed to pieces, the mother is exhausted and weakened, and, notwithstanding all the skill of the operator, such disorganisation of the genital parts may come on that, as a rule, death will be the consequence. The author then cites a series of cases in support of his views, and adopts the following conclusions. In pelves which measure from five to six and a half centimètres, if it be ascertained that the child is dead, version is still the only operation to which recourse can be had. But if the infant be living, version should be rejected, and recourse had to another operation. Pelvic version is impracticable in contraction under five centimètres. In the second part of his thesis, the author reviews the means by which version may be replaced: 1. When the neck is neither dilated nor dilatable; 2. when the fetal portion is too deeply impacted; 3. when the uterus is constricted either by a prolonged labour or by the immoderate use of oxytocic drugs; 4. in extreme narrowness of the pelvis.

RECENT PAPERS.

- On Intrauterine Treatment. By Dr. F. Wilson. (*Berliner Klinische Wochenschrift*, October 11, 18, and November 1.)
- A Case of Hemeralopia in the last weeks of Pregnancy and the first days of the Puerperal State. By Dr. O. Küstner. (*Berliner Klinische Wochenschrift*, October 25.)
- Placenta Prævia. By Dr. Pallen. (*Richmond and Louisville Medical Journal*, September, 1875.)
- Commentaries on Disease in Children. By Dr. Eustace Smith. (*Medical Times and Gazette*, October 23, 1875.)
- Clinical Lectures on the Diseases of Children. By Dr. Archambault. (*L'Union Médicale*, November 4.)
- Hysterical Chorea. By M. Bucquoy. (*Le Mouvement Médical*, November 13, 1875.)
- The Cæsarean Operation. By Dr. Cazin. (*Archives de Tocologie*, November, 1875.)
- Complete Obliteration of the Neck of the Uterus. By Dr. Charpentier. (*Ibid.*)
- Strapping the Breasts to Prevent and Arrest Lactation. By Dr. Munson. (*New York Medical Record*, November, 1875.)
- Concerning Puerperal Fever. By Dr. Sawyer. (*The Clinic*, November 6.)

OPHTHALMOLOGY AND OTOLOGY.

SEELY ON THE AURICLE.—In the *Ohio Clinic* of May 1, in the present year, appears a popular paper upon the auricle of the ear, read by Professor Seely before the Cincinnati Literary Club. After describing the normal anatomy of the organ, which is further illustrated by a woodcut, he passes on to certain 'physiological considerations' as to the function of the auricle. Humboldt's statement is mentioned, how that the troops of wild horses in South America divide into three sets, according to the direction of their ears—those that direct them forward being in the van; those that turn them to the side occupying the centre; while those which direct them backward bring up the rear—the troop being thus warned against danger from whatever direction it may threaten. The auricles of the horse were further regarded by Müller as an index of character—*e.g.* the vicious horse, as is well known, carries the ears thrown back, etc. The opinions of various physiologists are further discussed as to the utility of the auricle in man as a collector of sound-waves [Helmholtz's name, curiously enough, being conspicuous by its absence throughout the whole

article—*Rep.*], the experiment of Schneider being mentioned, who found that if all the various external depressions or cavities of both conchæ be filled with wax, it will be impossible to know the direction of sonorous waves, unless one of the auditory canals be casually turned in the direction of the sound. Hermann and Dunglison state that hearing is not at all impaired, except for a few days at first, by the removal of an auricle. [The reporter has seen in the clinic of Professor Gruber, in Vienna, a man, one of whose auricles had been completely eaten away by lupus, who stated that his hearing was quite unaffected. In this case it may reasonably be objected that, owing to the gradual—and piecemeal, so to say—removal of the concha, the rest of the auditory organ would be able gradually, and therefore insensibly, to adapt itself to the new conditions.] The 'Spitzohr,' as the Germans term it, of Darwin is next discussed, and a figure is given of a specimen. The following quotation from the celebrated novelist Hawthorne is further given:—"Donatello," playfully cried Miriam, "do not leave us in this perplexity. Shake aside those brown curls, my friend, and let us see whether this marvellous resemblance extends to the very tips of the ears." "No, no, dearest Signorina," answered Donatello, laughing, but with a certain earnestness, "I entreat you to take the tips of my ears for granted. I shall be like the wolf of the Apennines, if you touch my ears ever so softly. None of my race could ever endure it. It has always been a tender point with my forefathers and me."

Some regard the auricles in man as rudimentary organs, such as the 'plica semilunaris' at the angle of the eyelid, and others. It has been suggested, however, that though functionally almost useless, they may be of some medico-legal importance—*e.g.* in the determination of the age of a fetus; to which end the following measurements have been made. The longest, or vertical, diameter in a fetus of ten to eleven weeks is 2 millimètres; of three months, is 4 to 5 millimètres; of four months, $5\frac{1}{2}$ to $7\frac{1}{2}$ millimètres; of five months, 8 to 12 millimètres; of six months, 14 to 17 millimètres; of seven months, 16 to 24 millimètres; of eight months, 26 millimètres; of nine months, 26 to 28 millimètres; of the new-born infant, 33 to 36 millimètres. (These measurements have been made from preparations in alcohol; if made on the fresh subject, they would probably be a little greater.) According to Joux, moreover, no other organ of the human body so uniformly descends, still retaining its peculiar feature, from father to child. [It will be remembered that the auricles afforded an important point of non-identity in the celebrated 'Tichborne case.' 'The difference between the ears of Roger and of the defendant afford evidence which it is no exaggeration to term 'startling.' The ear of the defendant is longer by one-third, the greatest length being largely due to the detached pendulous lobe, which in Roger had no existence.' Vide fourth edition of Guy and Ferrier's *Principles of Forensic Medicine*.—*Rep.*]

Dr. Laycock and Dr. Mitchell have made many important observations as to the pathological import of the variations of the external ear, and to these reference is duly made in Professor Seeley's paper. In those, for instance, with slowly progressing general paralysis, the lobe of the auricle is not only soldered to the cheek, but its posterior half is, as it were, cut in half, and the helix defective. The latter structure and the lobule, according to Laycock,

often vary in size in the same individual, under varying conditions of mental or encephalic health, being flaccid when he is depressed, while they regain their usual plumpness on the return of mental vigour. Lavater, Joux, and Stahl assert that the auricle has a physiognomic significance. [It is remarkable that this is in direct opposition to the opinion of that most acute of all observers, Aristotle, who expressly declares of the ear, in cap. 9, lib. i. of his *Historia Animalium*, ἡὸς δ' οὐδὲν σημαίνει—'but it is of no physiognomic import.'—*Rep.*]

Attention, too, is very rightly directed to the observations of Winkelmänn in his well-known *Geschichte der Kunst des Alterthums*, and especially to the statement that by the artists of antiquity no part of the head was more carefully elaborated than the ears; so much so, that these organs afford the best indication as to whether a work of art put forward as antique is genuine or not. [The antique statues of Faunus, as showing their brute affinities, however beautiful the rest of the body, all have the 'Spitzohr,' while the ears of the boxers, or 'Pancratiasts,' owing to frequent fights, are swollen, as though with the othæmatomata not rarely seen in lunatic asylums.—*Rep.*]

Joux [like all enthusiasts, not excepting the prince of epicures, Brillat-Savarin, whose fourth aphorism runs thus: 'Dis-moi ce que tu manges, je te dirai ce que tu es.'—*Rep.*] goes so far as to exclaim: 'Show me your ear, I will tell you who you are, where you came from, whither you are going.'

JOHN C. GALTON.

GRUBER ON A NEW METHOD OF OPENING THE EUSTACHIAN TUBE AND VENTILATING THE TYMPANIC CANITY.—Finding that the passage of the Eustachian catheter is not always easy, or possible, and that the patient sometimes evinces a dislike to its use, Professor Gruber gives, in the *Monatsschrift für Ohrenheilkunde* for October, a description of a method which he considers has some advantages over what are called Politzer's and Lucae's methods, which are those usually employed instead of the catheter. For the passage of air up the Eustachian tube, it is necessary that the structures effecting the closure of the pharyngeal space in other directions will withstand a considerable amount of pressure. The act of swallowing, or some similar motion, is sufficient for this purpose; but as it is not always easy or painless for patients to swallow, Professor Gruber has endeavoured to ascertain by what other motion the same end can be arrived at. He says that the simple pressure of the root of the tongue on the posterior segment of the palate simultaneously with a forcible expiration is enough. This motion of the tongue separates the space of the mouth from that of the pharynx, and at the same time presses the soft palate upwards and backwards. The air which at the same moment is driven by the expiration into the pharynx cannot find an exit through the mouth or nose, but, pressing out the soft palate, causes it to form a firmer and more resistant wall, the more forcible the expiration. The nozzle of the caoutchouc bag having been previously introduced into the nostril, the bag is forcibly emptied, in the same way as in Politzer's method, synchronously with the expiration.

The teaching of these motions to the patients usually met with in a clinique would be, however, a matter of difficulty; and Professor Gruber has, by observation on himself and others, determined that

the articulation of the syllable hck=hkk, or huck, causes the same motions to be made by the tongue and palate. The closure of the pharyngeal space is effected in different degrees by the utterance of the syllables hack, heck, hick, hock, huck, hck, the closure being greater the later the expression stands in the series. When these syllables are spoken peculiar changes in the ear are to be observed; sometimes a motion of the tympanic membrane, and sometimes a noise like to that which is heard by Valsalva's method. Gruber believes this to arise from the same cause, viz., the passage of air through the Eustachian tube. In a foot-note he says he has made a series of manometric observations which he will publish when completed.

The closure of the pharyngeal space and the opening of the Eustachian tube as above described, he puts to practical use as follows. 'The operator stands or sits, as is most convenient, with the patient *vis-à-vis*. The end of the nozzle of the bag, which is held in the hand of the operator, is inserted one centimètre into the nostril of the patient. The operator now closes with the index and middle fingers of the other hand the nostril upon the nozzle of the bag, and while the patient at his command pronounces one of the before-mentioned syllables, the bag is forcibly squeezed, and the air is distinctly heard to pass through the tube into the tympanic cavity.'

Professor Gruber thinks that by inclining the head to one shoulder, and acting through the nostril farthest from that shoulder, the air passes in a greater degree up the Eustachian tube corresponding to the nostril blown through.

He believes this method has the following advantages over Politzer's.

1. It is much simpler, as it does not require the patient to swallow, which may be painful to him, and it does away with the objections raised by some patients to take water out of a tumbler common to many in a crowded clinique.

2. The patient is able to continue the closure of the pharyngeal space longer, if necessary, than by swallowing, so that air can pass for a longer time up the tube.

3. The force of the air through the tube can be better regulated by the use of the different syllables on the scale above given.

4. When the patient passes the air-douche for himself at home, he can regulate more easily the strength of the current. W. LAIDLAW PURVES.

CUIGNET ON SIMULATION OF MYOPIA OR OF HYPERMETROPIA BY RECRUITS, BY MEANS OF CONVEX OR CONCAVE GLASSES.—In order to test the accuracy of the widely prevailing belief that recruits, in order to obtain exemption from military service, are in the habit of simulating these errors of refraction by accustoming themselves to read through very powerful glasses, Dr. Cuignet (*Recueil d'Ophthalmologie*, July 1875), carried out a series of experimental trials upon the eyes of twenty-one non-commissioned officers who were stationed in Algeria.

These soldiers were chosen as being intelligent and reliable subjects, fairly educated, in good general health, and one and all possessing a nearly normal range and acuteness of vision. They could read Jaeger, no. I. at 12", and Jaeger, no. XX., at about 20'; and their average age was twenty-six.

Dr. Cuignet proceeded as follows. To three of

the soldiers he gave -15 glasses, and instructed them to use them in reading Jaeger VIII. for an hour in the morning, and for another hour in the afternoon. With a day or two of practice these men could read this type fluently, and -12 glasses were given them; at the same time -15 glasses were given to a second set of three men, so that one set of observations was made to check the other, and in this manner the entire number were gradually exercised in the use of glasses of higher power, -10 -8 -7 -6 -5½, and even -4 glasses being eventually employed. The trials extended from eight to twelve days, an interval of rest being allowed before the glasses of the highest power were employed. The results were that six were unable to read with -5½, ten were able to read with -5½; and five were able to read with -4. With all of them the effort to read with -6 was painful and difficult; and of those who succeeded in reading with -4, only two eventually did so with ease, the other three being only able to do so with extreme difficulty and when the type was brightly illuminated; the two former were slightly myopic and their optic disks were small, elliptical and bordered by choroidal atrophy.

Of sixteen of these men, not one was able to read Jaeger XX. at a distance with -glasses, such as -4 -5 -6 or -7.

From the above observations, Dr. Cuignet concludes that it is only with extreme difficulty that a recruit could learn to read with -5½ glass, and that it would be beyond his power to do so with -4 if his refraction was emmetropic; his success in doing so would reveal a certain amount of myopia; hence it appears that the test required by the Board of Examination, that the recruit should read with -4 glass, is practically sufficient to prevent or to detect deception.

In the same manner these soldiers were exercised in the use of convex glasses, and it was ascertained that sixteen were unable to read Jaeger no. VIII. with +8 glass, and although three were able to do so, they were unable to do it with +7, and not one of them was able to read it with +6, which is the test required to prove the presence of hypermetropia in sufficient amount to incapacitate for military service.

In Dr. Cuignet's opinion it follows, then, that it is impossible for a recruit to escape the service by simulation of this kind, and that the tests at present employed by the military surgeons are sufficiently stringent.

FAVRE ON FAULTY PERCEPTION OF COLOURS AFTER INJURIES TO THE HEAD.—Several writers of repute, and amongst them Desmarres, have placed cases upon record, in which Daltonism had followed severe injuries to the head. Dr. A. Favre has searched the records of these and of similar cases, and has published the result (*Lyon Médical*, July 25, 1875.) The occurrence of this faulty perception of colours after blows upon the head, either with or without a wound, and especially after contused wounds in the neighbourhood of the eye, is thus placed beyond doubt; but it is by no means constant, and Dr. Favre is not in a position to say positively that it is more frequent after an injury of a particular kind, or that it is always associated with injury of any one special region. The ophthalmoscope has not as yet revealed any appreciable lesion within the eye; and in those instances in which the phenomena have been noticed before the patient's death in con-

sequence of injury, no information has been gained from the *post mortem* appearances.

In the majority of cases, the defect of vision has been transient; but in one or two it has lasted for some weeks; in one instance of which Dr. Favre writes, the defect was first noticed when some weeks had passed since the injury. In no case yet on record has the defect been noticed as a permanent condition.

It is interesting to note the particular error which such patients commit. For the most part the complementary colour is seen by the patient; thus red has appeared to be blue, and blue red, to a man who had received a contused wound of the upper eyelid; and another patient who had received a sharp blow upon the eyeball with the finger, saw everything which was red as though it were green. In several instances the neighbouring colour has been seen; thus blue has appeared to be green, and green has appeared to be yellow.

Such facts as these are of great importance to all who from their occupation have to do with coloured light; this is especially the case with sailors and with railway *employés*, who are also very often exposed to the risk of injury. There are various branches of work in which an exact appreciation of colours is of great importance; one of these mentioned by Dr. Favre is the process of making the kind of steel known as Bessemer steel; during this process the workman has to watch very closely the play of colours which takes place in the metal under operation, while it is obvious that he himself is running no little risk.

BOWATER J. VERNON.

FANO ON DATURINE AS A MYDRIATIC.—The results of numerous cases collected by Dr. Fano, and communicated to the *Journal d'Oculistique et de Chirurgie* for August and September, are as follows.

1. With a solution of daturine (1 part in 3,000) dilatation of the pupil of a healthy eye is obtained in from twenty to twenty-five minutes.
2. The action of daturine is as prompt as that of atropine; the two solutions employed being of equal strength.
3. The instillation of a daturine collyrium (1 in 600) produces dilatation of the pupil at the end of twenty-five minutes, and in young subjects in a shorter space of time.
4. The instillation of an atropine collyrium produces mydriatic effects rather more promptly than the instillation of a daturine collyrium.
5. If, in vasculo-plastic keratitis, accompanied by a non-dilatable state of the pupil, daturine be inefficacious in bringing on this dilatation, the atropine also remains ineffective.
6. But in these same kinds of keratitis, daturine sometimes produces dilatation of the pupil, when atropine has not exercised any action of the kind. If the daturine collyrium do not produce dilatation of the pupil in certain cases of vasculo-plastic keratitis, in which the mydriatic effect of the atropine is also not more appreciable, the daturine seems to exercise a special action over the vessels of the cornea, which diminish in size under the influence of the alkaloid of datura stramonium.
8. The daturine collyrium therefore appears superior to atropine in certain cases of chronic and vasculo-plastic keratitis.

RECENT PAPERS.

Some Thoughts on Intraocular Tumours. (*La France Médicale*, September 22.)

On the Diagnosis of Diseases of the Eye. By Dr. E. Landolt. (*Progress Medical*, September 25 and October 2.)

- Clinical Notes of Cases of Affections of the Cornea. (*The Medical and Surgical Reporter*, September 11.)
- On the Ophthalmoscopic Diagnosis of Astigmatism. By Dr. Bravais. (*Birmingham Medical Review*, October, 1875.)
- On Bilateral Deviation of the Eyes. By Priestley Smith. (*Ibid.*)
- A New Instrument for Removing Foreign Bodies from the External Auditory Meatus. By Dr. Sapolini. (*Annali Universali di Medicina e Chirurgia*, July, and August.)
- Simulated Amaurosis, and the Means of Discovering it by the means of a Stereoscope. By Dr. Vieusse. (*Recueil d'Ophthalmologie*, July, 1875.)
- A Foreign Body within the Eye: Detachment of the Retina: Indo-Choroiditis. By Dr. E. Hæelle. (*Ibid.*)
- Some Considerations on Purulent Ophthalmia, and its Treatment. By Dr. Galowski. (*Ibid.*)
- On the Prognosis of Wounds of the Corpus Vitreum. By M. Gayat. (*Lyon Medical*, October 10.)
- A new Optometer for Measuring the Anomalies of Refraction and the Field of Vision. By Dr. S. D. Risley. (*American Journal of Medical Sciences*, October, 1875.)
- On Vertigo consecutive on Diseases of the Auditory Apparatus. By M. Philippeaux. (*Lyon Medical*, October 24.)
- On Some Disturbances of Vision connected with Changes of Temperature. By Dr. Maurice Raynaud. (*Archives Générales de Médecine*, November, 1875.)
- On Exudatory and Atrophic Choroiditis. By Dr. Drognot Landré. (*Annales d'Oculistique*, September and October, 1875.)
- Anatomy of the Cornea: Variations of Curvature. By Dr. G. Sée. (*Bordeaux Medical*, October 17.)
- Summary of One Hundred and Ninety-Two Cases of Astigmatism. By J. W. Hulke. (*Royal London Ophthalmic Hospital Reports*.)
- Report on the Forms of Eye-Disease which occur in connection with Rheumatism and Gout. By Jonathan Hutchinson. (*Ibid.*)
- On the Connection between Staphyloma Posticum and Astigmatism. By Dr. Thomson. (*American Journal of Medical Sciences*, October, 1875.)
- Traumatic Luxation of the Crystalline Lens into the Vitreous Body. By Dr. A. Brunnicher. (*Berliner Klinische Wochenschrift*, October 18 and 25.)
- On Some Disturbances of Vision connected with Changes of Temperature. By Dr. Maurice Raynaud. (*Archives Générales de Médecine*, November, 1875.)
- On the Indications against Trephining the Cornea. By M. Fr. Poncet. (*Gazette Médical de Paris*, November 6.)
- Clinical Lecture on a Case of Cataract Extraction. By Dr. C. B. Taylor. (*Practitioner*, November, 1875.)
- Recurrence of Melanotic Sarcoma of the Eye: Operation and Cure. (*Recueil d'Ophthalmologie*, October, 1875.)
- Modification of Anagnostakis's Plan of Operation for Entropion and Trichiasis of the Upper Eyelid. (*Ibid.*)
- Reports of Sixteen Cases of Cataract Operations. (*Boston Medical and Surgical Journal*, November 4, 1875.)

DERMATOLOGY.

HEBRA'S TREATMENT OF SKIN-AFFECTIONS.—Dr. Rudolf Tauszky, of New York, writes in the *Ohio Clinic*, August 21, 1875: Experience in this city has taught me that the formulæ used by Hebra for the treatment of the affections of the skin are generally not known to general practitioners, especially is this the case with druggists. When I have had occasion to prescribe Vlemingx's solution or pilulæ Asiaticæ, or spiritus saponis alcalinus, etc., druggists invariably sent their clerks to my office to inquire what my prescriptions meant. The readers of the *Clinic* will, I hope, pardon me, those at least who do not make the treatment of skin-diseases a specialty (for the latter, of course, these lines are not intended), for briefly communicating the mode of treatment successfully used in Vienna.

1. In *seborrhœa*, Hebra rubs the scabs with a soft sponge which has been dipped in oil, and afterwards applies, if the scalp be affected, a flannel cap upon it, which has also been well soaked in oil; over this

another cap made of oiled silk is placed and left there for two hours, after which time the softened scabs are removed with soapsuds. If the layer of scabs be very thin, the oiling alone is quite sufficient for the purpose of removing them. The treatment of these crusts is, therefore, a very simple and efficient one; anointing them with simple cerate, washing the scalp with soap and water, or using:

R Spermaceti,
Olive oil, aa q. s.
M. S. ointment.

or in very obstinate cases he uses:

Green soap (sapo viridis) ʒij,
Spirit. vini rectificati (alcohol) ʒj,
Filter and add spts. lavandulæ ʒij.
S. External use.

With this latter mixture use at the same time the cold douche. On the hairy scalp, alcohol or French brandy should also be used with a soft sponge, when the green soap mixture is being used.

Another good and valuable prescription in the hypersecretion of the sebaceous glands is the following:

R Ætheris sulphur. ʒss,
Alcohol rectificati ʒj,
Tinct. benzoës,
or aqua de Cologne ʒj,
S. Wash.

In infiltrations of the skin use ointments, for instance:

R Oxydum zinci,
or Hydrargyri præcipit. album
or Carbonas plumbi.

Of either of these one drachm to the ounce of simple cerate, or use:

R Oxyd. zinci,
Carbon. plumbi aa ʒj,
Spermaceti ʒj,
Olei olivæ quantum sufficit ut fiat unguentum molle.
S. ointment.

In *seborrhœa* of the genital organs apply amyllum, semina lycopodii pulv., talcum Venetum (Venetian tallow) or pulv. oxyd. zinci, or pulv. alum. plumosi.

2. Against *comedones* Hebra uses soaps of potash or soda, pressing or squeezing them out by means of a watch-key, or he prescribes as a wash:

R Carbonate of potash ʒj,
Distilled water, one pound.
S. Wash. Use several times a day.

or

R Carbonate of potash ʒj.
Distilled water ʒij.

S. Touch the efflorescences with a hair-pencil dipped in this solution.

In very obstinate cases:

R Lac. sulphuris,
Glycerini,
Spirit. vini rectific. (alcohol),
Potassæ carbon.,
Ætheris sulphuric, aa ʒij

S. To be applied in the evening with hair pencil, and washed off in the morning.

If dependent on scrofula or tuberculosis, of course these affections have to be treated on general principles.

3. *Milium*, *Strophulus*.—Use fomentations of milk, bran poultice, afterwards wash with soap, or use:

R Carbonate of potash ʒj,
Distilled water a pint.

Mix and bathe with it. If soft, prick the epidermis with a

bistoury or lancet, and press the contents out with a watch-key.

4. *Molluscum Contagiosum*.—Small tumours are squeezed out, larger ones have to be extirpated or ligatured.

5. *Hyperhydrosis* ; profuse sweating.

R Empl. diachyli simpl. liquefacti,
Olei lini aa q. s.

S. To be applied and left on for twelve hours ; to be continued by making a fresh application night and morning for eight or twelve days,

or

R Empl. diachyl. simpl. liquefacti,
Empl. lithargyri fusci,
Olei lini, aa q. s.

M. D. S. To be thickly spread upon linen and applied to the feet for nine days, changing the application once every three days. The epidermis soon peels off, after which use foot baths, and either of the following powders are to be used locally : Starch, lycopodium, cream of tartar, alum, etc.

6. *Pustula Maligna. Carbuncle*.—If the affection be limited to a small space, use the actual cautery, or cauterise with caustic potash. Excision will arrest the disease in the same manner.

7. *Erythema* generally disappears by itself without medication. Only in erythema nodosum, horizontal posture of the extremity ; cold applications either alone or with aquæ Goulardi ; tepid applications if the cold be not well borne.

8. *Intertrigo*.—Dusting the parts with semen lycopodi, or starch, or alum, or

R Unguenti cinerei,
juniperi aa ʒij.

M. S. Ointment, apply morning and evening.

or

R Oxyd. zinci ʒj,
Amyli puri ʒj-ij.

S. Powder to be used locally twice daily.

If the epidermis be removed, in abrasions use spermaceti, and cold applications. If there be pustules : (*Intertrigo pustulosum*) applications with :

R Hydrarg. sublimati corros. gr. j,
Aquæ destill. ʒj.
M. S. External use only.

9. *Urticaria*.—Use cold baths or locally diluted acids ; to allay itching, touch—with rub—with alcohol. If caused by indigestion, give an enema or cathartic to remove the cause. In the chronic form, the so-called papulosa, great benefit is derived from the application of mercurial plaster, applied in the evening and left all night.

10. *Erysipelas*.—In high fever, quinine, give acidulated drinks. As long as there is swelling and pain, use ice-bags. If the disease abates, use warm fomentations. If the erysipelas be spreading (*Erysipelas migrans*), use on the border mercurial ointment. Dust the inflamed part with amylum.

11. *Herpes*.—Dust the vesicles with amylum or apply crème celeste ; warm applications with narcotic herbs are recommended, and pencilling with collodium. In herpes zoster against the neuralgia which sometimes remains,

R Morphii muriat. gr. x,
Aquæ destill. ʒij.

S. 5-10 drops hypodermically applied,

or

R Emplastr. diabol. ʒss,
Ext. opii aquosi,
or Laudani puri ʒj.

S. Plaster, spread upon leather or linen and fasten on the affected part with a strap and left until the pain subsides, or until an artificial eczema is produced.

In herpes of the mouth :

R Permanganatis potassæ ʒij,
Aquæ fontanæ ʒvijs.
S. Mouth-wash.

12. *Miliaria, Sudamina*.—Starch locally, or

R Olei rusci ʒj,
Alcohol rectificati ʒvj.

D. S. The affected part to be lightly touched with this.

13. *Eczema*.—If dependent upon constitutional causes, these have to be treated. In chlorosis, preparations of iron are given. If dependent on general debility, wine and a generous nourishing diet ; meat, fish, etc. : if the eruption appear periodically, being preceded by febrile movements, quinine : in obstinate cases, arsenic and carbolic acid internally, with fresh air and attention to hygiene. The local treatment, however, is most important, more so than the general constitutional. And here the ointment made of adhesive plaster, dissolved in linseed oil, unguentum diachyli album, the *schmierseife* solution of caustic potash and the preparations of tar : oleum rusci, oleum fagi, or oleum cardini play an important part. To remove the scabs, especially from the scalp or the face of children, use locally cod-liver oil, sometimes olive or linseed oil, or oil of almonds, mutton tallow, simple ointment, crème celeste, spermaceti, cold cream, or hog's lard. The hydrotherapeutic treatment is applicable to recent, general, acute cases. Hebra recommends the wet pack, which can be made use of in hospital as well as in private practice. It is the following. Place an equally large piece of India-rubber over a mattress, over this two folded bed sheets, over this one or two woollen blankets, finally two wet sheets (and the urinal), the latter to be placed between the thighs of the patient. The upper sheet answers for the trunk and upper extremities, the lower for the lower extremities. The shower-bath, for instance, an ordinary watering-pot, is arranged near the bed. After the use of the shower-bath, the sheets are drawn tightly over the patient, and over all his coverings another blanket is placed. The patient soon feels warm, commences to sweat, and the itching and burning soon improves. This manipulation is to be repeated at least four times in twenty-four hours. The room must be moderately heated, and it is well for the patient to take some exercise after the wet pack and the douche before going to bed.

If the eczema affect only the fingers, hands, or feet, Hebra recommends India-rubber gloves or stockings ; but these must be cleaned twice by being placed in fresh water, and the extremities must be washed and cleaned at the same time before the India-rubber is again applied.

If the skin be infiltrated, and where there is a good deal of watery secretion, the parts are to be washed with green soap. These have to be dried and diachylon ointment is to be worn upon them, sometimes for weeks. If the skin is peeling off, scaling, preparations of tar have to be used. His formulæ are these :

R Melted adhesive plaster,
Oil of linseed, boiled, aa ʒij
Oil of lavender 6 drops
S. Diachylon ointment.

or the same ointment modified :

R Olive oil ʒiv,
Litharge ʒj.
Heat till you get a soft ointment, and add
Olei lavandulæ gtt. x.

S. Thickly to be spread upon linen, and to be changed twice in twenty-four hours.

The salve has to be held tightly to the affected part by means of a bandage. But these ointments are not applicable on hairy parts. Here carbolic acid, or solution of borax, or spiritus saponis alcalinus answer best.

R. Acidi carbol. ʒj.
Olei olivarium ʒvj.

M. S. This mixture is to be applied gradually, and is briskly rubbed into the affected part with a stiff brush, and is to be washed off with soap and water, lukewarm (as in shampooing),

or

R. Acid carbol. ʒj.
Glycerini,
Bals. Peruviani aa ʒij,
Spirit. vini. rectificat. ʒvj.
S. To be used like the former,

or

R. Boracis Venetæ,
Aluminis crudi, aa ʒj,
Glycerini ʒij.

S. To be applied morning and evening with stiff brush (like soap in shampooing).

On the scalp Hebra uses the spiritus saponis alcalinus, the formula for which is :

R. Saponis viridis (green soap),
Alcohol. rectificati ʒj;
Filter this solution, and add
Spirit. lavandulæ ʒj
S. Alkaline spirits of soap.

Or the so-called 'schmierseife' of Hebra, which is in extensive use, is made as follows :

R. Lixiv. caustic. (spec. grav. 1.333.) ʒijj,
Adip. ceti ʒvj,
S. Schmierseife.

The affected parts are to be rubbed with this schmierseife with a flannel, and the patient remain wrapped in woollen blankets during the treatment ; or the soap is soon removed with tepid water, and the parts are covered by cold applications. In eczema of the nose he uses, after cleansing the nostrils with lukewarm water, pledgets of lint with diachylon ointment into the affected nostril, or

R. Zinci sulphur. gr. vj,
Aquæ laurocerasi ʒj,
Glycerini ʒij.

Lint dipped into this liquid to be introduced into the nostril. Or

R. Oxyd. zinci ʒij,
Ung. glycerini ʒj.

To be applied in milder cases—eczema simplex. In intertrigo he recommends the following :

R. Oxyd. zinci ʒj,
Unguent simpl. ʒj.
M. f. ointment.

or

R. Mercurii præcip. albi,
Zinci oxyd. aa ʒss.
Axungiæ ʒj.
S. Ointment.

or

R. Zinc. oxidi ʒj,
Amyli puri ʒj,
S. Powder.

or

R. Amyl puri ʒiv,
Pulv. iridis florent.
Alum. plumosi, aa ʒij.
S. Powder.

or

R. Sulph. zinci ʒj,
Aquæ destill. simpl. libr. j.

Where there is a large secretion, especially in

eczema of the face, to be applied by means of cloths, which have to be saturated with it.

Or

R. Cupri sulphatis ʒj,
Aquæ destillatæ, libram j.

Also applied by means of cloths.

Or

R. Kali caustici ʒj,
Aquæ destillatæ, libram j.

In pityriasis rubra and eczema squamosum.

R. Olei cadini,
Saponis viridis aa ʒss.
Alcohol. rectificati ʒiv.
Twice daily with brush.

In addition to this, he dusts the patient with one of the powders, starch, etc., and uses the continued bath.

R. Olei cadini,
Olei jecoris aselli.
S. To be rubbed in.

or

R. Olei cadini ʒij,
Glycerini ʒij.
S. The same as the former.

The application of these tar preparations is made after the parts have been well rubbed with schmierseife (see above), and washed with tepid water.

In very obstinate eczema papulosum, especially on the lower extremities, but only once or twice a week, he applies :

R. Caustic potash ʒj,
Distilled water, ʒij.
S. Apply once or twice a week.

In the same manner he uses :

R. Mercur. sublim. corros. ʒj,
Æther. sulphur. ʒij,
Collodii ʒss.
S. To be applied after the bath.

The description of the treatment of pemphigus, acne, sycosis, impetigo, ecthyma, psoriasis, lichen, prurigo, combustio, congelatio, lupus, syphilis, scabies, favus, teleangiectasia, carcinoma epitheliale, herpes tonsurans, pityriasis versicolor, and eczema marginatum, onychomycosis, and pediculi pubis and vestimentorum, are reserved for a future occasion.

LONGWORTH ON PRURIGO.—In the *Cincinnati Clinic* for July 10, is a paper by Dr. Longworth, in which he says :

It is the extremities on which the disease manifests itself with greatest intensity, and the side of extension is always more affected than the side of flexion. The forearm is more thickly covered by the eruption than the arm; the thigh still more than the forearm and the leg more than all. It is in this latter situation that one who has had some experience can sometimes make the diagnosis with his eyes closed, by passing his hand rapidly over the anterior surface of the tibia, which produces on the dry roughened integument of this region a peculiar sound like that produced by passing the hand over the stiff, short hairs of a nail-brush, or over coarse wrapping paper, while at the same time a peculiar prickling, tingling feeling is imparted to the fingers. In certain regions the skin is invariably free, or very nearly so, from disease, although the rest of the body be thickly covered, viz., the skin over the side of flexion of the joints. Thus, no matter how extensive the eruption may be, the following regions are always unaffected : the axilla, the bend of the elbow, the palmar surface of the wrist and hand, the groin and genitals, the

hollow of the knee, and the sole of the foot. Finally, the lymphatic glands in the upper part of the thigh in the neighbourhood of the saphenous opening often become enormously enlarged; this is always the case when eczematous patches and pustules, the result of continued scratching, are present on the lower extremity. These tumours frequently attain the size of the adult fist.

True prurigo is fortunately not a very common disease; it begins, as a rule, in very early life, and continues with occasional remissions and exacerbations until its close. At certain times, after appropriate treatment, and occasionally in summer, the patient appears quite free from disease, the respite is, however, short, and unless treatment is persisted in it is sure to return. Upon whomsoever prurigo fastens itself, it will be very likely to prove his life-long companion and accompany him to the grave. The sufferings and torments of the unhappy victim of this disease are beyond description. Fierce and intolerable itching gives him no respite day or night. It is a constant presence with him; moral fortitude enables the patient to bear the pain of most chronic disorders, but the itching of prurigo is intolerable. Pain elicits sympathy, but itching carries with it an idea of the ludicrous or repulsive, which only increases the torments of the sufferer. Although feeling the deepest pity for the patient, I have often been unable to repress an involuntary smile to see a poor creature, a prey to this disorder, as soon as he is uncovered for examination, begin to tear his own flesh after the manner of a wild beast, and with a peculiarly exaggerated expression of despair on his countenance. Indeed the facial expression of a sufferer from prurigo is peculiar; it is severe, sour, ascetic; he answers only in monosyllables, never dilates on his sufferings, but is easily moved to tears, even if a bearded man, by a little sympathy from the surgeon. His manner is easily explained—he expects no sympathy from anybody; he has been an object of ridicule or disgust his whole life long to all with whom he has come in contact. As a boy and youth he has been plagued by his school-fellows and reproved by the teacher for his constant habit of scratching; later in life, especially if he belong to the labouring classes and is unable to secure a separate room or a separate bed, he is made sport of by his companions or bed-fellows, or even turned out of their society, either because in their ignorance they fear contagion, or because they are disturbed in sleep by his never-ceasing scratching. An object of disgust and aversion to his fellow-creatures, cut off from the enjoyments of friendship, or even, it may be, from the blessings of wife and children, what wonder is it that he finally loses all moral courage, and that tired of his miserable existence he at last puts an end to it with his own hands? Suicide, it is well known, is not uncommonly resorted to as the last cure of prurigo.

J. MILNER FOTHERGILL, M.D.

MÜNCHMEYER ON URTICARIA.—In the *Berliner Klinische Wochenschrift* (no. 20 of this year), Dr. Münchmeyer relates two unusual cases of this affection. One was in a boy eight years old, and occurred in the course of a slight febrile attack, with bronchial catarrh and gastric disturbance. On the second day two wheals appeared on the abdomen; others followed on the back and shoulders, and by evening the child's trunk was nearly covered with these five large patches. The general symptoms were not

altered, and—what has often been noticed in *Urticaria febrilis* of children—there was no local irritation and scratching. Two days later the other patches had disappeared, but around the two on the abdomen, which remained as red spots, had formed two much larger concentric circles, which together occupied the entire abdomen. These also had entirely disappeared by the sixth day of the illness, which was then at an end.

The other case was one of ordinary round itching and smarting wheals, which constantly appeared on the cheeks and chin of a healthy young soldier, when exposed to cold wind. The writer adds an anatomical description of the local oedema and anæmia, characteristic of urticaria and of the artificial wheals which may sometimes be produced by subcutaneous injections. He advocates the view that the condition depends primarily upon inhibition of the vaso-motor nerves, produced either by an external irritant, or by the reflex action of some drug or other excitant on the gastro-intestinal surface.

P. H. PYE-SMITH, M.D.

RECENT PAPERS.

- Leprosy and its Varieties. By Dr. J. W. Ross. (*New Orleans Medical and Surgical Journal*, September, 1875.)
 On Eczema. By M. Muzelier. (*Gazette des Hôpitaux*, September 21.)
 General Remarks on Tinea. By M. Lailler. (*Gazette des Hôpitaux*, September 30.)
 Remarks upon the Special Study of Skin-Diseases, with Analyses of Three Hundred Cases. By Dr. Mackey. (*The Birmingham Medical Review*, October, 1875.)
 On Leprosy in Sicily. By Dr. Profeta. (*Lo Sperimentale*, September.)
 On Eczema. By M. E. Guibout. (*Gazette des Hôpitaux*, October 26.)
 Can Arsenic cure Pemphigus? By Mr. Jonathan Hutchinson. (*Medical Times and Gazette*, October 23.)
 On Sporadic Pellagra. By M. Béhier. (*Le Progrès Medical*, November 6.)

MEDICAL CHEMISTRY.

ZWEIFEL ON MECONIUM.—Zweifel (*Archiv für Gynécologie*, Band vii. p. 474, and abstract in *Centralblatt für die Medicinischen Wissenschaften*, no. 37, 1875) employed as material the contents of the great intestine of still-born children. The microscopic investigation gave the interesting result, viz., the existence of hæmatoidin crystals with the characteristic Gmelin's reaction. By extracting the meconium with chloroform and evaporating it, bilirubin crystals could be obtained. They were no longer contained in the yellow evacuations, and thus disappeared with the other constituents of the meconium. As chemical constituents of meconium were found: biliverdin, bilirubin, bile-acids, viz., taurocholic-cholesterin, mucin, traces of formic acid, and the higher volatile fatty acids, and non-volatile fatty acids. Negative results were obtained for grape-sugar, glycogen, paralbumen, leucin, tyrosin, albumen-peptone, lactic acid. The quantity of water in the meconium was almost 80 per cent., the ash about one per cent. The fat in fresh meconium was 0.772, and the cholesterin 0.797 per cent. Two analyses of the ash are given. The composition per cent. is—insoluble substances, 2.1; phosphate of iron, 3.41; sulphuric acid, 23.0; chlorine, 2.53; phosphoric acid, 5.44; lime, 5.7; magnesia, 4.0; potash, 8.6; soda, 41.0. In relation to the excreta

of adults, the high percentage of sulphuric acid and diminution in phosphoric acid is noticeable.

BOISIN AND LOISEN ON THE INFLUENCE OF BOILING DISTILLED WATER ON FEHLING'S SOLUTION.—E. Boisin and E. Loisen (*Comptes Rendus*, tome lxxix.) have found that pure distilled water when boiling reduces Fehling's solution employed for testing for sugar. Thus fifty cubic centimètres of water can reduce one cubic centimètre of solution. Ordinary spring water does not do this. A series of substances hinder the reduction, when they are added to the distilled water previously; especially lime-salts, ammonia, and soda-salts. With a quite pure solution of grape-sugar some chloride of calcium must be previously added to the Fehling's solution. The authors recommend this as a means of testing the purity of distilled water.

WM. STIRLING, D.Sc., M.D.

REPORTS OF FOREIGN SOCIETIES.

ACADEMY OF MEDICINE IN PARIS.

October 19. *Puncture of the Pericardium*.—M. H. Roger read the first part of a report on a case of paracentesis of the pericardium, communicated by M. Chairon, in which puncture gave issue to more than 1,000 grammes of liquid. Entering on the question from the general point of view, M. Roger affirmed that puncture of the pericardium is not like puncture of the pleura, and that there are two conditions necessary to the operation:—1. The size of the effusion; 2. The urgency of the symptoms. It is necessary first to specify what is understood by large effusion. M. Roger estimates it at a minimum of 500 grammes; below that, there is no cause for surgical intervention. In the majority of cases the very considerable effusions, and even medium ones, are easily recognised, especially by percussion. Many errors may, however, be committed, especially if, instead of being simple, the pericarditis be complicated with endocarditis, pleurisy, or tubercles. As an example of these mistakes, beside the case of tumours of the mediastinum, dilatation of the heart and pleurisy may be cited; sometimes, without knowing it, instead of the intended paracentesis of the pericardium, thoracentesis has been performed, and *vice versa*. And yet to perform pericardial paracentesis it is of the greatest importance to be certain of the diagnosis. Going on to the considerations drawn from the nature of the liquid, puncture seemed to M. Rogers to be contra-indicated in active dropsies of the pericardium, in sanguineous effusions, and in purulent collections connected with a general infection. In very considerable effusions of the pericarditis, puncture may be specially useful. With reference to the method of operation, the spot to be preferred is the fifth intercostal space; at an intermediate point between the nipple and the sternum, rather nearer to the former, always being guided by the apex of the heart. Beyond this point it would be easy to wound the surrounding organs. Many instances are recorded in which the heart has been wounded, even by capillary instruments. They, however, as well as experiments, demonstrate the innocuity of cardiac punctures. The aspiratory method, by the aid of capillary trocars, should have preference over other methods, which ought to be given up. What, however, is definitely the thera-

peutic value of paracentesis in pericardiac effusions? The indication for operation is rarely found, in consequence of coexistent or ulterior complications. It is always difficult, notwithstanding the capillary method; it is incomplete, for it can scarcely be repeated several times, nor kept up, like thoracentesis, by accessory means, washings out, etc.; but in certain circumstances, as in the large acute or chronic effusions of rheumatism, and in large chronic effusions of which the tubercular nature is not evident; operation is indicated. Out of a table of fifty-four cases, one cure only and several deaths are found; certainly it may be said that the disease itself is extremely serious when it shows itself under conditions which call for paracentesis. In some cases the pericarditis is cured by the fact of the evacuation of the liquid; but it leaves general adhesion which subsequently brings on an organic affection of the heart. Accordingly, the success will only be relative in a tuberculous patient, destined to succumb after a longer or shorter respite to the progress of the diathesis. To conclude, paracentesis of the pericardium has no curative power, but is formally indicated as a palliative, and sometimes as a last resource. It will always be a bold intervention; but one which is sometimes dictated and justified by necessity.

November 9. *Removal of the Uterus in Irreducible Inversion*.—M. Denuce, of Bourdeaux, read a note on the ablation of the body of the uterus in irreducible inversion. The conclusions of the memoir were these. 1. External hysterotomy is a surgical resource only to be used in extremity; but valuable in cases of irreducible inversion which endanger the life of the patient. 2. This operation does not show a larger mortality than the majority of capital operations. 3. It the present state of science it ought to be made preferentially by ligature, bearing in mind all the improvements which that method has received. 4. The first months of an inversion, even the first year, should as much as possible be subjected to repeated attempts at reduction, to lactation, which generally suppresses hæmorrhages, and to every kind of palliative measure. 5. Operation should be reserved for cases acknowledged to be irreducible, and for that already remote period of the disease when the uterus has become completely retroverted and has taken a fresh definite form, undergone by circumjacent organs, and which affords a much smaller field for peritoneal inflammation, which must be avoided at all hazards.

Disorders of Vision.—M. Jules Guérin intervened in the discussion on M. Giraud-Teulon's work, to claim his part in modern oculistic researches; a part which he regrets to see forgotten in consequence of the researches of the German and Dutch schools. Accommodation is not, as these schools and M. Giraud-Teulon assert, the result of the sole action of the ciliary muscle; the motor muscles of the ocular globe contribute equally to it, and the cornea modifies its form in accommodation. In strabismus the changes of the eye, far from being primary, as the German and Dutch schools affirm, would be conclusive on the contraction of the muscles of the eye. In certain affections of the eye spectacles are not the only resource, but also certain surgical operations performed for the last thirty years by M. Guérin.

Nov. 16. *Inoculability of Tubercle*.—M. Metzger read a second memoir on the non-inoculability of tubercle. Relying on more than 130 experi-

ments, he concluded that the nodules developed from inoculations have no resemblance whatever to tubercles, because in the majority of cases they are re-absorbed; because they may be produced by the inoculation of different substances; because in the inoculation of tuberculous substance, experiment only gives results in proportion as the matter employed is in a somewhat advanced state of decomposition.

On the Movements and the Functions of the Stomach.—M. Leven read a memoir on this subject. According to the researches of the writer, the function of the stomach does not consist in peptonising azotised matters; if the gastric juice has the power of converting albuminoid matters into peptones, the conversion is not effected in the stomach. The function of the stomach is to store up the food, to drive it into the intestine, if in the natural condition they are divided, as milk and raw eggs; if on the contrary, they are not divided, then to divide and drive them into the intestines. It is therefore not accurate to say that the only function of the muscular fibres of the stomach is to place the food in contact with the gastric juice. After having summed up the results of numerous experiments instituted by him on dogs, M. Leven concludes: 'To sum up, milk and raw eggs do not remain in the stomach; they are driven from it unchanged. If meat remain there for some hours it is because it is bulky and cannot make its exit until it is reduced, we have noticed that it reaches the intestine unchanged. Reduction and division of the meat is due both to the gastric juice and the *membrana muscularis mucosæ*. The gastric juice facilitates the action of the *membrana muscularis*. If, in the theory now in vogue, the *membrana muscularis* is only considered as a secondary one, it is because experimenters have been under unfortunate conditions for seeing it perform its functions well. If they have attributed an essential function to the gastric juice, it is because, only being conversant with one portion of their subject, they have exaggerated the importance of that which they have studied. They have never yet been able to discover in the stomach the peptones which it is credited with creating. Their theory, therefore, is only founded on hypothesis. That the gastric juice with which the fibrillæ of the meat is impregnated, helps to peptonise it in the intestine with the other digestive liquids which empty themselves into it, is however probable. But in the stomach the gastric juice with the *membrana muscularis* does nothing for the non-divided food but what the chemist does when he wishes to act on a substance; it triturates it, and then the liquids secreted by the pancreas and the liver are able to act chemically on it in the stomach.'

ACADEMY OF SCIENCES IN PARIS.

September 1. *Non-Regeneration of the Crystalline Lens.*—A note was read by M. Gayat, of Lyons, designed to show that the crystalline lens does not become regenerated in the rabbit, nor probably in the human subject. In young rabbits some transparent masses, having an analogous composition to that of the crystalline lens, are observed; but in older rabbits these productions have different characteristics from those of the crystalline lens. These masses arise from the development of the crystalline portions which have been left in the capsule.

September 27. *Pulverisation of Blood.*—A note was read by M. G. Le Bon on the transformation of blood into a soluble powder, and the physical, chemical, and alimentary properties of this powder. Blood reduced to powder is insoluble in water and impervious to pepsine. Commercial extracts of blood do not contain any hæmoglobin. The writer has succeeded by a special apparatus in reducing blood into a soluble powder containing a somewhat large amount of hæmoglobin. This preparation, therefore, at the same time, contains very nutritive elements and is easy of digestion.

October 4. *Pulsation of the Heart and Arteries.*—M. Bouillaud read a paper on new researches on the pulsations of the heart in the normal condition, and on the registering of these pulsations, as well as those of the arteries. The author showed a sphygmographic tracing, destined to demonstrate that the pulse is naturally dicrotic, and shows four beats corresponding to the pulsations of the heart. The first part of the arterial revolution gives an ascending line representing the first beat of the artery; the second part is composed of three elements, of which the one forms a hook with the first line, and corresponds with the short pause; the second element is a depression answering to the arterial systole; finally, the last element gives an oblique line, indicating the long pause of the artery.

October 18. *Neuralgiform Osteitis.*—M. Gosselin presented a memoir on trephining and gouging of the long bones in cases of neuralgiform osteitis. M. Pingaud communicated a case of trephining successfully performed for neuralgiform osteitis of the frontal bone. This case demonstrated that osteitis may take on the same form and be cured in the same way in the flat as in the long bones. The patient had suffered from a subperiosteal abscess, preceded and followed by neuralgic pains to such an extent as to produce a true aura epileptica, as well as epileptiform attacks. Trephining put an end to all these accidents, and also showed that the frontal bone did not contain any pus in its hollows, but a fungous tissue much resembling it.

Treatment of Varix.—M. Bergeron forwarded a note on the mechanism of sanguineous coagulation in the treatment of varix by simple isolation of the veins. This method of treatment has been recently proposed by M. Rigaud, of Nancy, and it is interesting to know what is the direct cause which produces coagulation in these cases. His experiments have led him to note the following facts. When the isolation of a vein is performed, the cellular coat and the vasa vasorum are destroyed to a certain extent. From default of nutrition, a progressive gangrene is then produced. This gangrene, which spreads from layer to layer in the tunics of the vessels, kills the epithelial layer, which no longer receives any aliment, and acts as an inert body, bringing on coagulation of the blood.

Phosphorus Necrosis.—M. Magitot demonstrates in a paper on the subject the pathogeny and prophylaxis of phosphorus necrosis. The conclusion of this paper is that necrosis of the maxillary bones, having its origin in phosphorus poisoning, has for its sole cause its invariable and exclusive way of entrance, a certain variety of dental caries—penetrating caries. The rules of hygiene, which M. Magitot is thoroughly convinced should completely abolish necrosis in factories where phosphorus is used, should be laid down as follows. 1. The heads of factories should be legally compelled to

have the mouths of their workmen examined before engaging them. Every person found to be affected with penetrating caries should be rejected, or not allowed to work until the caries is stopped or cured, or the removal of the tooth is followed by a complete healing of the gum. 2. All those persons who only show signs of gingivitis, or a caries of the first stage, may be admitted to the factory with impunity. 3. An inspection of the persons employed in the factories every six months will make known those workmen who have become affected with penetrating caries since the engagement.

November 2. *Unipolar Electric Excitation of the Nerves*.—M. Chauveau terms unipolar excitation the local action exercised by electric currents on the nerves, at the application point of an electrode, when this electrode alone is in contact, immediate or mediate with the nerve, kept in place in its normal relations, and can scarcely act efficiently except at the point of contact itself, on account of the great diffusion which immediately disperses the current in all directions. The laws of unipolar electric irritation in relation to the two poles of the pile during the passage of the continuous current may be formulated in the following simple terms. 1. For every individual whose nerves are in a perfect physiological condition, there is an electric value, as a rule very slight, sometimes moderate, rarely very high, which gives to the two poles the same degree of activity in the case of unipolar excitation of the nervo-motor fasciculi. 2. The contractions produced by positive excitation and negative excitation with this intensity type of the current, are equal both in amount and in duration. Below this intensity equal currents produce unequal effects with the two poles; the activity of the negative pole is greater. When tetanisation is produced by these weak currents, it is never with the positive pole on the nerve. 3. Above the value type of the intensity of the current, the inequality is produced in an inverse sense. It is the positive pole which shows the greatest activity, and the difference often considerably increases with much regularity with the intensity of the current, if the limits above which the nerves become changed or, at least, fatigued, are not overpassed. Absolutely permanent tetanisation; very often obtained when the positive pole is on the nerve, never shows itself when it is the negative pole, if the currents are sufficiently strong. 4. These strong currents act also in an unequal manner on the sensitive nerve fasciculi, according to the nature of the pole in contact with the nerve; but the inequality is reversed instead of being symmetrical with that which shows itself in the muscular contractions produced by the excitation of the motor nerves. With strong currents of perfectly equal intensity, even the mediate application of the negative electrode on the nerves is more painful than the application of the positive electrode. 5. It is sufficient to compare these laws with those of the bipolar excitement of the nerves forming isolated conductors to see what extreme changes this study of unipolar excitation is destined to exercise over the general theory of electronus and electric excitation. The medical employment of electricity is specially likely to profit largely by these researches. In fact, the new indications given to physicians by the study of unipolar excitation for the application of electricity to the diagnosis and therapeutics of nervous affections may be considered as an immediate practical result.

Action of Bile on the Organism.—A note from MM. Feltz and Ritter supplemented their paper on the action of bile in the organism. The presence of the biliary salts in the blood and urine is produced under the influence of certain organic and inorganic poisons, administered in a given manner. The quantity of these salts varies with the nature of the poison. The writers have tried the following substances; phosphorus introduced into the stomach dissolved in oil, in dissolved blood, in glycerine; tartar emetic, administered by the digestive passage and by inoculation into the blood; the arseniate of soda and arsenious acid ingested into the stomach; finally, septic substances injected into the venous system. Scarcely perceptible in poisoning by phosphorus, the quantity of biliary salts, revealed by Pettenkoffer's reagent, goes on increasing in slow septic poisonings, poisonings by tartar emetic, arseniate of soda and arsenious acid. The presence of biliary salts in the urine implies with certainty contamination of the blood, for they are only found in the urine twenty-four hours later. It is to the increased secretion endeavouring to expel the poison, that this accumulation of biliary salts in the organism appears to be due.

REVIEWS.

The Mucous Membrane of the Uterus, with special reference to the Development and Structure of the Decidua. BY GEO. J. ENGELMANN. New York, 1875.

The author, along with Dr. Kundrat, made a large number of investigations on the above subject in Vienna and Berlin. The result of their joint works were published by Dr. Kundrat in Stricker's *Medizinische Jahrbücher* for 1873. Dr. Engelmann, wishing to correct some of the views expressed in their previous communication which he cannot endorse, and which were developed after he left Vienna, has been led to produce in English his own views of the results of the joint investigation.

The Uterine Mucous Membrane in its Development up to the Time of Puberty.—The essential difference between the fully developed and infantile uterus consists in the absence of all glandular structure in the latter, nor do we meet with any trace of glands during the first years of life, during which the membrane increases but little in thickness, averaging about 0.0078 inch (0.02 mm.). In the third or fourth year the first traces of the development of the glands appear in the shape of small crypt-like depressions, either simple or in clusters of two or three with a common opening; a delicate epithelium lines these sinuses, for glands we cannot yet call them. From this time onwards very few changes take place until after the tenth year, when the uterus develops more rapidly, the glands forming straight ducts, sometimes extending even into the muscular stratum.

The Fully Developed Membrane during its Period of Rest is closely and inseparably attached to the muscular tissue, there being no submucous areolar tissue. The uterine glands possess no basement-membrane.

The Tumefaction of the Uterine Mucous Membrane during the Menstrual Period is partly due to hypertrophy of its superficial layers. These being rich in embryonic cells, grow far above the original open-

ings of the glands, circumvallating them, and thus causing the funnel-shaped depressions, those small pits, which make the ostia seem enlarged. The upper part of the glands is also much enlarged; their lower part, like the stroma surrounding them, remaining unaltered. Anatomical experience does not bear out the current theory that the menstrual changes in the mucous membrane come and go as rapidly as the menstrual period itself. During the period of menstrual hæmorrhage there is more or less marked accumulation of fat-granules within the interglandular cells of the upper layers of the membrane, with fatty degeneration of its blood-vessels, and of the glandular and surface epithelium. The relation of these changes to the menstrual discharge is, according to the author, one of cause and effect. Not only are these changes found to exist, developed independently of the hæmorrhage, but they are in fact the cause of that hæmorrhage. The entire epithelium of the surface is not lost during the retrograde metamorphosis.

Normal Development of the Decidua.—The appearance of the uterus in the third week of pregnancy is thus described. The decidua vera of the first week of pregnancy is characterised by a prolific development of the mucous membrane, especially of the interglandular tissue of its upper layers, and by an increase in the length and volume of the glands themselves. The appearance of the openings of glands on both surfaces of the decidua reflexa and of the longitudinal course of their ducts within its tissue proves that this membrane is developed from folds of the mucous membrane whose approaching borders unite with each other. The author finds that the villi of the chorion do not regularly enter the gland-tubes, but that the adhesions existing are owing to an agglutination of the parts and to the growth of the serotinal tissue around the villi. The changes in the decidua in the second month, and from the fourth month to the termination of the pregnancy, are then described. The development of the placenta, and the retrograde metamorphosis of the membranes, are also discussed. As to the expulsion of the decidua during normal parturition, the parts of the maternal membranes adherent to the ovum are the whole of the decidua reflexa, the entire upper cellular layer of the serotina, and the more superficial parts of the upper stratum of the vera; the greatest part of the decidua vera and the spongy lower half of the decidua serotina remain *in utero*. As to the mode of regeneration of the mucous membrane after parturition, the author states that in the second week only a thin film, hardly to be called a membrane, is left on the inner surface of the uterus, and it already begins to assume the appearance of an active germinating tissue, still retaining the well-marked yellowish-red colour. Only the deepest layers thus remain; these are thoroughly infiltrated with round cells, and but few of the fatty disintegrating cells are to be seen. This process lays open the fundi of the glands in which the glandular cells have been preserved, the deepest part of the glands now forms part of the surface, and their epithelial lining appears as that of the surface. An active cell-proliferation now begins in these remnants of the glandular epithelium, as seen in the segmentation of the nuclei. The paper is illustrated by fourteen figures.

WM. STIRLING, D.Sc., M.D.

On Ovarian Dropsy and Ascites, their Diagnosis and Treatment; also on Prolapsus of the Uterus.
By RICHARD EPPS, M.R.C.S. London: Simpkin, Marshall & Co., 1875.

This book is a jumble of ovarian dropsy, ascites, and prolapsus uteri, the cases reported to enforce the theories are most of them incomplete, and those which are exceptions to this rule are given without anything to guide the reader in forming an estimate as to the correctness of the diagnosis. The chief object of the book appears to be to encourage repeated small aspirations in place of tapping in the ordinary way; but, as the cases given appear to have ended either in putrefaction, suppuration, and hectic, or in the patient disappearing of her own accord after submitting to some dozen aspirations, we imagine that neither members of the profession nor their patients will be encouraged to repeat the experiments of the author. The book displays a great want of knowledge of the subjects on which it professes to give instruction.

NEW INVENTION.

BERNARD AND CO'S DOUBLE DISTILLED SCOTCH WHISKY.

FOR the last few years, purity in alcoholic stimulants has become a desideratum of greater importance than in former times. When brandy was a true distillate from wines suitable for the purpose, gaining its stringency from the oak cask, and its flavour and mellowness from age, no spirit could be considered better adapted for medicinal and dietetic use. But since the largeness of the demand for brandy has increased, and it is distilled from strong coarse, or inferior wine, and also from murks or marks (that is, the residue after pressing the grapes), brandies, except those costing greatly enhanced prices, obtainable only from a few firms, have been justly regarded with suspicion by the profession, owing to the frequent presence of fousel oil. Scotch whisky has therefore taken a position as a stimulant which requires a most careful scrutiny on the part of the profession to assure themselves that they are not recommending an even more objectionable form of alcohol, in which the liability to contamination by fousel oil may be quite as frequently suspected. Many attempts have been made to ensure freedom from these poisonous constituents. Age has always been more or less successful; but the expense attending storage, the loss by evaporation, interest of money, and insurance risks, all combine to render a really mature old whisky almost as expensive a luxury as the finest and purest old brandy. A great stride has already been made in the endeavour to procure purity by scientific means. Messrs. Bernard and Co. have succeeded so far that the whisky they produce, by an entirely new method of distillation, is as free from fousel oil as the purest previously attained after keeping for ten years. Certificates have been given approving this purity from three separate and independent investigations, and on this score, supported as it is with the guarantee that the whole of the whisky is equal to the samples analysed, Messrs Bernard and Co.'s double distilled Scotch whisky must rank foremost among the purest alcoholic stimulants which can be easily procured.

RECENT FRENCH BOOKS.

Published by G. Masson.

Étude d'hygiène privée et sociale ; par A. Lacassagne, professeur-agrégé au Val-de-Grâce. Grand in-18 de 560 pages. Paris, 1875.

Étude toxicologique sur le cuivre et ses composés ; par le docteur L.-M.-V. Galippe. In-8 de 168 pages. Paris, 1875.

Nouvelle méthode de traitement de la goutte, de la gravelle unique et du rhumatisme gouteux ; par le docteur Zénon Pupier. In-8 de 40 pages.

De la catalepsie chez les aliénés ; par Ch. Louis, docteur en médecine, ancien interne des asiles d'aliénés, etc.

Importancia clinica de la temperatura en la fiebre tifoidea, these de Justiniano Alfredo Ledesma, de Buenos-Ayres.

Influence de la pression de l'air sur la vie de l'homme, climats d'altitude et climats de montagne ; par M. le docteur Jourdanet. Prix : 30 fr.

Les bandages et les appareils à fractures. Manuel de déligation chirurgicale, contenant la description d'un certain nombre de bandages nouveaux ; par M. le docteur Guillemin, médecin-major des hôpitaux militaires. Prix : 6 fr.

Recherches sur l'anatomie et la physiologie du cœur, spécialement au point de vue du fonctionnement des valvules auriculo-ventriculaires ; par M. Marc Sée, chef des travaux anatomiques à la faculté de médecine de Paris. 1 vol. In-4 de 67 pages avec 4 planches. Prix : 6 fr.

De l'emploi du bromure de potassium dans les maladies nerveuses ; par M. le docteur Auguste Voisin, médecin de la Salpêtrière. Mémoire couronné par l'Académie de médecine. 1 vol. In-4 de 260 pages, avec une planche en couleur. Prix : 8 fr.

De la transmission de la syphilis entre nourrices et nourrissons, et notamment par l'allaitement, avec considérations médico-légales ; par M. le docteur Camille Appay. 1 vol. In-8 de 124 pages. Prix : 2 fr. 50.

De la nostalgie ; par M. le docteur Ang. Haspel. Ouvrage couronné par l'Académie de médecine. 1 vol. In-4 de 168 pages. Prix : 3 fr.

Contribution à l'étude de la maladie kystique bénigne du testicule ; par M. A. Perriquet. In-8 de 53 pages, avec une planche. Prix : 2 fr.

De la dégénérescence palustre ; par M. le docteur Edouard Burdel. In-8 de 35 pages, avec 8 photographies. Prix : 3 fr.

Des congestions actives et de la contraction autonome des vaisseaux ; par M. le docteur Onimus. In-8 de 24 pages. Prix : 1 fr.

Traité des maladies des reins et des altérations pathologiques de l'urine ; par M. le docteur Lecorché, médecin des hôpitaux, etc. 1 vol. In-8 de 840 pages. Prix : 12 fr.

Du vaginisme, ses causes, sa nature, son traitement, suivi d'une leçon clinique de M. le professeur Lorain ; par M. le docteur Lutaud. In-8. Prix : 2 fr.

Note sur le traitement préventif de la fièvre puerpérale ; par M. le docteur Triaire. In-8. Prix : 2 fr.

Published by P. Asselin.

Nouvelle doctrine physiologique ; par le docteur E. Bernard (de Partenay). 1 vol. In-8 de 236 pages. Toulouse, chez Gimet et chex Labouche, libraires, 1875.

Published by A. Delahaye.

Guien (Dr. Arsène). Guide du voyageur sur mer ou Traité complet du mal de mer. Paris, 1876. Prix : 2 fr.

Lebert (Dr.). Traitement de l'angine couenneuse par la glace, suivi d'un appendice sur le meilleur moyen de se procurer cette substance en toute saison. Paris, 1875. Prix : 1 fr. 50.

Leçons cliniques sur les fractures de jambe faites à l'Hôtel-Dieu au mois de janvier 1875 ; par M. le professeur A. Richet. Paris, 1875. Prix : 2 fr. 50.

Mauriac (Ch.). Clinique de l'hôpital du Midi. Diminution des maladies vénériennes dans la ville de Paris depuis la guerre de 1870-1871. Paris, 1875. Prix : 2 fr.

Published by J. B. Baillière and Son.

Nouveaux éléments de physiologie humaine comprenant les principes de la physiologie comparée et de la physiologie générale ; par H. Beaunis, professeur de physiologie à la Faculté de médecine de Nancy. Paris, 1876. Prix : 14 fr.

MISCELLANY.

M. WURTZ is appointed Professor of Organic Chemistry at the Faculty of the Sciences of Paris.

PRO BONO PUBLICO.—A new society, comprising more than a hundred members, has been formed in Paris. The members bind themselves by a special testamentary disposition not to be interred after death ; but their bodies are to be delivered to the dissecting-rooms of the various medical schools for dissection.

THE PARIS ACADEMY OF MEDICINE has lately been enriched by two legacies. M. Desportes has bequeathed to it a sum of 30,000 francs, to found prizes or award premiums for researches on therapeutic subjects. M. Demarquay has also left a legacy of 100,000 francs to the same body, with which either to found an asylum or to endow a prize for a subject to be left to their own choice.

KANT AND DARWIN.—A volume bearing this title, and which forms a contribution to the history of the doctrine of development, has lately issued from the German press. The author aims to prove that the great Königsberg professor was really the author of what is now called 'Darwinism.' David Strauss, on the other hand, claimed the same honour for Goethe.

CHICORY.—Many persons have a well-grounded objection to the addition of chicory to their coffee. They will find fresh reasons for their objection in the circumstance that four persons have recently been poisoned at Rouen by the use of coffee, with which was mixed what was sold as chicory, but proved to be chicory mixed accidentally with the root of henbane, probably growing in the same field, and carelessly mixed with it.

PROFESSOR HUXLEY has received the necessary sanction of the Lord President of the Privy Council and of the Royal Society, and has accepted the invitation of the Senatus of the University of Edinburgh to take charge again of the Natural History department during next summer session, Professor Wyville Thomson's term of absence having been prolonged in order to enable him to complete the work he is charged with in the *Challenger* surveying expedition.

IN accordance with the will of Professor Jüngken, of Berlin, his collection of scientific works and all his surgical instruments have been presented by his widow to the Augusta Hospital, and a letter of thanks has been sent to her by the Empress Augusta. The Royal Saxon Academy of Sciences at Leipzig has also received a donation from the late Dr. Hermann Härtel of 30,000 marks, to be expended in helping German students to prosecute scientific inquiries.

THE following is the list of office-bearers of the Royal Medical Society of Edinburgh, for the session 1875-76. *Presidents*.—A. R. Turnbull, M.B., C.M. ; A. R. Coldstream, M.B., C.M., L.R.C.S., Ed. ; Thomas R. Ronaldson, M.B. C.M. ; Thomas D. Wilson, M.A., M.B., L.R.C.P. and S. Ed. *Secretaries*.—George Ogilvie, B.Sc. ; Leslie Ogilvie, B.Sc. *Curator of Library*.—J. J. Cox, M.B., C.M. *Curator of Museum*.—J. Graham Brown, M.B., C.M. *Treasurer*.—J. R. Young. *Sub-Librarian*.—John Turner.

THE LATE SIR CHARLES WHEATSTONE has bequeathed to the corporation of King's College all his scientific books and instruments, or such portion as the Professor of Experimental Philosophy may think proper to select ; together with all the medals and diplomas awarded to him by societies, both at home and abroad, and a pecuniary legacy of 500*l.*, to be expended in scientific apparatus ; to the Royal Society of London the portrait of the Hon. Robert Boyle and all the framed portraits of scientific men in his possession, also a pecuniary legacy of 500*l.* to be added to the Wollaston Donation Fund.

A FEMALE SURGEON OF THE SEVENTEENTH CENTURY.—The Camden Society have lately issued an interesting volume, entitled *The Autobiography of Anne, Lady Halkett*. From a memoir of this lady, published in George Ballard's *Memoirs of Learned Ladies*, we find that she was born in the early part of the seventeenth century, and that, as was not uncommon with ladies of rank in that age, she received a liberal education; her favourite studies being theology and physic. She is said to have attained great proficiency in surgery, and effected so many cures in medicine that people came even from Holland to seek her advice. In her *Autobiography* Lady Anne gives a description of the plan of treatment she adopted in the cases of some soldiers wounded at the battle of Dunbar, which gives a favourable impression of her surgical attainments.

THE Zoological Station on the Island of Penikese, established by the late Professor Agassiz, has had to be given up. The endowment provided by Mr. Anderson proved to be insufficient to meet the high cost of living in this cheerless and barren spot; and the persons who came to avail themselves of the advantages of the establishment were found to be quite incompetent to conduct researches into the marine life around them. The place got into debt, and the concern was wound up, Mr. Alexander Agassiz paying the deficit out of his own pocket. Mr. Agassiz has recently built himself a house at the southern extremity of Newport, Rhode Island, and proposes to invite one or more students to join him from time to time in investigating the marine animals which the tide brings in great multitudes almost up to his door.

INSECTS IN THE PITCHER-PLANT.—In a recent number of the *Transactions of the Academy of Science of St. Louis*, Mr. Charles Riley describes the curious habits of two insects which occur alive in the pitchers of *Sarracenia variolaris*. The first is a small moth (*Xanthoptera semi-crocea*), which lays its eggs within the pitcher. The young caterpillars there weave a gossamer-like web, and feed on the cellular tissue of the leaf. The putrid remains of insects previously captured, which have perished, are covered over by the excrements of these caterpillars. The second is a dipterous insect (*Sarcophaga Sarracenie*). The mature fly is stated to drop a number of the larvæ into the pitcher, where they feed on the decaying remains of other insects, and finally burrow through the bottom of the pitcher into the ground, where they undergo their transformations.

THE COCA LEAF.—In an introductory address to the Edinburgh Botanical Society, Sir Robert Christison, its president, related some experiments he had been making with a view to test the 'coca leaf,' which, he explained, was not to be confounded with the well known cocoa. In Peru, where it grows, coca is reported to have remarkable nourishing properties; and, in order to ascertain the precise nature of these, he chewed the leaf by way of stimulant on the occasion of two ascents of Ben Voirlich. On reaching the top he felt greatly fatigued, and began to chew his coca; with the result that he was able to make the descent, not only with firmness, but with almost juvenile elasticity. He further stated, that by its use he had found himself able to walk sixteen miles with ease, although when he attempted this feat without such nourishment he felt greatly fatigued.

INSECTIVOROUS PLANTS.—The *Botanische Zeitung*, no. 44, of the present year, contains an account of a series of experiments by MM. Will and Reess on the alleged absorptive and digestive power chiefly of *Drosera*. Made without knowledge of Mr. Darwin's experiments, these researches amply confirm, as far as they go, the conclusions of that writer, that the tentacles on the leaves have the power of absorbing and digesting nitrogenous substances. An attempt was made to analyse the so-called 'ferment' contained in the acid secretion from the glands. It was found to consist of a mixture of volatile fatty acids, among

which formic acid (which was not found by Professor Frankland) was readily detected. The presence of propionic and butyric acid was also inferred from the smell. Experiments to determine whether the glandular hairs of other plants, as *Primula chinensis* and *Hyoscyamus niger*, had also any absorptive power, produced, like those of Mr. Darwin, only negative results.

A 'RESPIRATION-CHAMBER.'—A writer in the *Agricultural Gazette* gives the following account of one of the 'respiration-chambers,' of which there are now four in Germany. The one described is at the physiological station at Kulthurn. 'Here, again, we have a method of research peculiar to German investigators, and which has yielded a rich harvest of results. We were fortunate enough to see the chamber in action. It is built of iron, with glass windows, and when closed is perfectly air-tight. The apparatus connected with the chamber admits of air being slowly drawn through it, the air as it leaves the chamber being measured, and the amount of water, carbonic acid, and other gases present in the air being determined. As the composition of the air which enters the chamber can be equally ascertained, all the data necessary for an exact experiment are obtainable. In the respiration-chamber the animal to be experimented on is placed, receiving at the same time a diet of known composition. Everything that the animal takes into its system in the form of food is known, and everything that leaves the animal as excrement, or by perspiration or respiration, is also known; by difference, therefore, the constituents retained in the body of the animal can be ascertained. By this painstaking and thorough method of investigation many important facts have been brought to light. Thus, it has been shown that fat is formed in the animal from the albuminoids contained in the food, while in the older view of nutrition it was supposed that fat was exclusively formed from sugar, starch, and other carbo-hydrates. Another fact established is that oxygen is stored up in the system during sleep, and re-evolved as carbonic acid during waking hours.'

HOW TO BRING UP CHILDREN.—The *Revue Britannique* gives some details of the peculiar methods adopted by the women of some savage tribes for the physical training of their children. Amongst the Aleuti, if a new-born infant have the presumption to cry, the mother carries it stark naked to the banks of the river, and, whether the season be summer or winter, plunges the babe into the water until it is quiet. Amongst some tribes they will not give the new-born infant any food until the fourth day, in order to teach it to fast. Amongst the Columbians, the mother rolls the babe in the snow to harden it; and babies of fifteen months old have been seen tucked up on the back of a horse and manfully holding the bridle whilst they jog along. Amongst the Californians, directly a child is born it is thrown into the water. If it swim, it is taken out again and receives all proper care; if it sink, it is abandoned, and the body is not even buried. Amongst the New Mexicans the children are left to themselves as soon as they are capable of finding their own food. When food is scarce, the parents abandon or kill them. The Chinooks have an agreeable fashion of flattening the heads of their offspring. They do not think a face can be beautiful, unless it present a straight line from the root of the nose to the top of the head. To attain this desirable result, the child is tied into its cradle directly it is born, and kept in it from three months to a year. A piece of wood or leather is placed on the forehead and kept there by ligatures, which are tightened every day until the cranium has taken the desired form. It may be imagined that the poor child, with its little black eyes half starting out of their orbits, presents a miserable spectacle. Curious to relate, however, it is stated that the little ones do not suffer much, and are not injured in body or mind. A woman who did not conform to this custom would incur universal opprobrium, and the child would be as much despised by its compatriots as if it were a circular-headed European.

WEST LONDON ENTOMOLOGICAL SOCIETY.—Under the auspices of this society, an exhibition of great interest to students of entomology has lately been held at the St. Mark's Institute, George Street, Oxford Street. The society itself, though not a old one, it having been started in 1868, is in a flourishing condition. Though it is composed almost entirely of working men, and the subscription is extremely small, the entrance fee being but one shilling, and the subscription one penny per week, it is quite self-supporting, and no appeal has been made to the outside public for funds to carry on its work. The exhibition which lasted two nights was free, and the entire cost was borne by the society itself. The exhibitors numbered about thirty-four, and these included professional naturalists as well as amateurs. The lepidopterous insects, or moths and butterflies, formed the principal feature of the show, and in this class Mr. Vaughan exhibited every species of British crambites; while Mr. Meek had a number of specimens showing the life-history of sixty-six different species of British moths and butterflies. The exhibition was not entirely confined to insects, as there was a remarkably fine collection of birds' eggs, and some very excellent skins of wild animals, as well as stuffed birds and heads of dogs, bulls, etc. The different specimens were well and tastefully arranged, and the exhibits generally were in an almost perfect state of preservation. It may be stated that though there were a few exotics, the show was principally British, and most of the specimens exhibited had been obtained by members of the society, the chief hunting-ground being Epping Forest, in the preservation of which the members naturally take a lively interest.

CANNIBALISM.—Cannibals, says the *Journal des Debats* in an article on Colonel de Brazza's scientific mission to Africa, exist in several parts of the globe, in New Zealand, South-east Australia, Polynesia, the Malay Islands, the Celebes, Molucca, and the Philippine Islands. The civilisation introduced by the Spaniards in this part of the Archipelago has greatly diminished these barbarous customs. They are, however, encountered still in the interior of Africa, India, South and North America, and in Polynesia, where the most ferocious are found in the islands of Viti. Anthropophagy, or the eating of human flesh, is variously practised in these countries. In New Zealand they eat the eyes and the heart, under the belief that the victim is not struck off from the Book of Life unless they do so. In South America cannibalism is the authorised mode of sepulture, each family roasting and eating its dead. In India there are still some families who kill and eat those of their number who are afflicted with incurable disease. In one part of Sumatra, anthropophagy is established as a legal system. The penal code condemns to be eaten alive all persons found guilty of adultery, also burglars, and all prisoners of war. The victims in these three cases are carried to a public place, tied to a post, cut up into pieces, and eaten morsel by morsel by the populace. Women, however, are not allowed to attend these feasts. It is said that, when the victim is an adulteress, it is the husband who comes up first to the stake and chooses a tit-bit—generally the ears—which he cuts off and eats with the utmost relish. When everybody has helped himself to a piece of flesh, and nothing is left but the skeleton of the condemned, the chief of the party appears, cuts off the head, and carries it away as a trophy. These monstrous executions are conducted with the greatest deliberation, each of those present eating his piece of human flesh with the conviction that by doing so he is performing an act of justice. Cannibalism is still practised by the Huron tribes of North America, the Iroquois in Canada, and the Caribbe tribes, the primitive inhabitants of the Lesser Antilles, and the southernmost parts of America. They are found in small numbers still in Venezuela and Guiana (Guayana), and are considered very enterprising, warlike, and ferocious. From Africa, which is now being explored, we may expect some further disclosures; and the *Journal des Debats* states as a fact that among the Jagas race in Africa,

better known as the Cassawages, not far from South Guinea, the bodies of men and women, cut up into joints, are exposed for sale, just like butcher's meat, in the tribal market-places.

UNIVERSITY OF LONDON.—The following is a list of the candidates who have passed the recent second M.B. examination:—**First Division.**—Batterbury, George Henry, King's College; Batterbury, Richard Legg, King's College; Garlick, George, University College; Hetley, Henry, Guy's Hospital; Hobson, Lewis John, University College; Hullard, Jean Arthur, B.Sc., University College; Jameson, Leander Starr, University College; May, Bennett, Birmingham General Hospital and Sydenham College; Rose, William, King's College; Smith, Herbert Alder, St. Bartholomew's Hospital; Verco, Joseph Cooke, St. Bartholomew's Hospital; Voelcker, George Henry, University College. **Second Division.**—Bogg, Thomas Wemyss, University College; Buchanan, Arthur, Guy's Hospital; Crespín, Edgar Reginald Legassick, Guy's Hospital; Crétin, Eugène, St. Bartholomew's Hospital; Maclean, Thomas Edwin, University College; Moore, George Edward, King's College; Palmer, Frederick John Morton, Guy's Hospital. The following candidates passed the examination for Honours. **Medicine.**—**First Class:** Batterbury, George Henry (Scholarship and Gold Medal), King's College; Verco, Joseph Cooke (Gold Medal), St. Bartholomew's Hospital; Crétin, Eugène, St. Bartholomew's Hospital. **Second Class:** Hetley, Henry, Guy's Hospital; Garlick, George, University College; Moore, George Edward, King's College. **Third Class:** Hobson, Lewis John, University College; Voelcker, George Henry, University College. **Obstetric Medicine.**—**First Class:** Smith, Herbert Alder (Scholarship and Gold Medal), St. Bartholomew's Hospital; Batterbury, George Henry (Gold Medal), King's College; Verco, Joseph Cooke, St. Bartholomew's Hospital. **Second Class:** Garlick, George, University College; Buchanan, Arthur, Guy's Hospital; Hobson, Lewis John, University College; Hullard, Jean Arthur, B.Sc., University College. **Third Class:** Hetley, Henry, Guy's Hospital; Jameson, Leander Starr, University College; Voelcker, George Henry, University College. **Forensic Medicine.**—**First Class:** Verco, James Cooke (Scholarship and Gold Medal), St. Bartholomew's Hospital; Jameson, Leander Starr (Gold Medal), University College; Hullard, Jean Arthur, B.Sc., University College; Voelcker, George Henry, University College; Crétin Eugène, St. Bartholomew's Hospital; Hetley, Henry, Guy's Hospital.—The following gentlemen have passed the M.D. examination: Crocker, Henry Radcliffe, B.S., University College; Duncan, Andrew, King's College; Eastes, Thomas, Guy's Hospital (Gold Medal); Philpot, Joseph Henry, King's College; Sturge, William Allen, University College; Yeo, Isaac Burney, King's College (Obtained the number of marks qualifying for the Medal). **Logic and Moral Philosophy only:** Hoar, Charles Edward, King's College; Houghton, Walter Benoni, B.S., University College; Leech, Daniel John, Manchester Medical School; Lewtas, John, University, Edinburgh and Netley Hospital; Lowe, Walter George, St. Bartholomew's Hospital; Nicholson, Arthur, King's College; Rigby, James Arthur, Guy's Hospital; Taylor, Herbert, St. Bartholomew's Hospital.—The M.S. Examination (for Logic and Moral Philosophy only), has been passed by Gould, Alfred Pearce, University College.—The following have passed the B.S. Examination.—**First Division:** Hullard, Jean Arthur, B.Sc., University College; Maclean, Thomas Edwin, University College; May, Bennett, Birmingham General Hospital.—**Second Division:** Hobson, Lewis John, University College; Jameson, Leander Starr, University College; Rose, William, King's College; Voelcker, George Henry, University College. **Examination for Honours.**—**First Class:** Hullard, Jean Arthur, B.Sc. (Gold Medal), University College; May, Bennett, Birmingham General Hospital, and Rose, William, King's College (equal).



